Profile Patterns of Sex Offenders Using the Minnesota Multiphasic Personality Inventory- Second Edition- Restructured Form (MMPI-2-RF)

by

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"Profile Patterns of Sex Offenders Using the Minnesota Multiphasic Personality Inventory- Second Edition- Restructured Form (MMPI-2-RF)," a Doctoral Research Project by Renee VanSlyke

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Abstract

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Personality assessment of sex offenders provides clarifying information regarding underlying characteristics that may contribute to commission of sex offenses. The Minnesota Multiphasic Personality Inventory (MMPI) and its second edition, the MMPI-2, have been the most extensively used personality measures in the psychological assessment of sex offenders. The latest version of the test, the Minnesota Multiphasic Personality Inventory, Second Edition, Restructured Form (MMPI-2-RF) is the focus of the current study. The current study evaluated MMPI-2-RF profiles obtained from a sample of 281 adult male sex offenders. The mean age of the sample was 36.3 (*SD* = 13.1; range = 18 – 75). A cluster analytic approach was taken to identify subgroups of sex offenders, similar to research directions taken with the MMPI and MMPI-2. Results of an agglomerative hierarchical cluster analysis and subsequent K-means analysis yielded three distinct clusters. Discriminant function analyses indicated two significant functions that correctly classified 96.4% of cases into these clusters. Multivariate and univariate analyses of variance indicated significant differences in mean scores across the three clusters for 33 of the 49 scales examined. A review of cluster patterns indicated significantly higher scores in Cluster 1 (*n* = 46) than Cluster 2 (*n* = 93) and Cluster 3 (*n* = 142), and significantly higher scores in Cluster 2 than Cluster 3.

Thus, the clusters appeared to represent high psychological disturbance, within normal limits, and low disturbance presentations, respectively. Cluster characteristics and implications of these findings are discussed.

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Introduction

Sex offenses, particularly against children, are a great concern of society. In 2008, the National Center for Missing and Exploited Children estimated that in the United States there were 673,989 registered sex offenders (Davis & Archer, 2010). This number is solely based on those who were convicted of a sex offense and were required to register as a sex offender for a specific period of time; it does not include individuals who were convicted of a sex offense and not required to register, or people who committed sexual offenses but were never formally convicted for the offenses.

In recent years, those who have been accused or convicted of sex offenses have received heightened attention in the media. Increased media reports of sex offenses make it seem that sex offenses have increased in frequency. This further amplifies societal concern regarding sex offenses. Moreover, punishment for sex offenses is a controversial topic in that society considers some punishments to be disproportionately low for the crime; for example, in the Brock Turner case, his sentence of six months in jail and three years of probation for three counts of felony sexual assault was often seen as too light a punishment (Winton, 2016). On the other hand, some punishments for sex offenses are considered disproportionately high; for example, the requirement to register as a sex offender as a juvenile may be viewed as having unintended negative consequences that last for life (Harris, Walfield, Shields, & Letourneau, 2016). Another controversial topic in the media

regarding sex offenses is false reporting. Members of society tend to fall into two categories in this matter: those who believe that every allegation is legitimate and those who wonder if some adults are making false accusations of sexual abuse for attention or monetary gain (e.g. in relation to the increasing list of accusations against several powerful men in Hollywood; Lazard, 2018). It is also important to note that as technology evolves, so do types of sexual offenses. With the evolution of the internet and technology, a new form of internet sex offenses has come to be identified. Internet sex offenses often involve the possession and distribution of child pornography, and those convicted of this offense can range from adults who intentionally seek out child pornography to underage teenagers who send each other nude photos. Given this relatively new category of sex offenses, definitions of sexual offense and the corresponding laws, including those concerning sex offender registries, are called into question.

Legal and psychological definitions of sex offenses differ. Legal definitions of sex offenses vary by state and are used to convict individuals who have committed sex offenses. In the state of Florida, sex offenses fall into categories of Sexual Battery, Unlawful Sexual Activity with Certain Minors, Lewd or Lascivious Offenses, Indecent Exposure of Sexual Organs, Voyeurism, and other criminal acts considered Obscene such as possession of child pornography and travelling to meet a minor. Sexual battery is defined as "oral, anal, or vaginal penetration by, or union with, the sexual organ of another or the anal or vaginal penetration of another by any other object" (Fla. Stat. § 794.011, 2017). Unlawful Sexual Activity with

Certain Minors is defined as "a person 24 years of age or older who engages in sexual activity with a person 16 or 17 years of age" (Fla. Stat. § 794.05, 2017). Lewd or Lascivious Offenses are defined as "engaging in sexual activity with a person 12 years of age or older but less than 16 years of age; or encouraging, forcing, or enticing any person less than 16 years of age to engage in sadomasochistic abuse, sexual bestiality, prostitution, or any other act involving sexual activity" or intentionally touching "in a lewd or lascivious manner the breasts, genitals, genital area, or buttocks, or the clothing covering them, of a person less than 16 years of age, or forces or entices a person under 16 years of age to so touch the perpetrator" (Fla. Stat. § 800.04, 2017). Therefore, the state of Florida defines a sex offender as someone who "has been convicted of committing, or attempting, soliciting, or conspiring to commit" a sex offense (Fla. Stat. § 943.0435, 2017).

In contrast to the legal definitions of sex offenses, the main focus of psychology with regards to sex offenses is the presence or absence of a psychological disorder, as well as dysfunctional personality characteristics that contribute to the commission of the sex offense. Psychologists conduct research and assessments to increase knowledge of, and to develop a better understanding of, these psychological disorders and factors. In doing so, psychologists are able to identify personality traits commonly found in sex offenders, assess for risk of recidivism, and develop appropriate treatment methods.

The current study aimed to contribute to this knowledge of sex offender personality traits by utilizing the Minnesota Multiphasic Personality Inventory-Second Edition- Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008/2011). Sex offender research using this instrument is beginning to evolve, and the current study would be the first to examine personality profile patterns of sex offenders using the MMPI-2-RF. Knowledge of these personality profile patterns potentially contributes to forensic dispositions in sexual offender cases by guiding psychosexual evaluations and treatment interventions that aim to reduce sexual offense recidivism.

Review of the Literature

In conducting research with sex offenders, it is pertinent to consider type of offenses, characteristics of the offenders, and the testing instrument itself. This chapter begins with an overview of sex offenses and proceeds to discuss psychological explanations and findings from personality assessment of sex offenders. The chapter then describes the testing instrument of focus in the current study, the Minnesota Multiphasic Personality Inventory- Second Edition-Restructured Form, and its earlier forms, and reviews the research on sex offenders with the various forms of this measure.

Types of Sex Offenses

A common assumption made by the lay public is that there is a prototypical sex offender similar to those portrayed in movies: often a Caucasian, middle-aged man who is viewed as strange and has pedophilic interests. However, this is not the case. While the vast majority of sex offenders are men, the presence of female sex offenders should not be disregarded. Furthermore, there are various types of sex offenses that can be divided into two categories.

The first broad method of categorizing sex offenses is based on whether or not there was physical contact with the victim. Examples of contact sex offenses include frotteurism (sexual arousal from touching or rubbing against nonconsenting people), rape, or unwanted sexual touching. Examples of noncontact sex offenses include voyeurism (sexual arousal from observing unsuspecting people who are disrobing, naked, or engaging in sexual activities), exhibitionism (sexual arousal

from exposing genitals to unsuspecting people), and possession or distribution of child pornography.

The second broad method of categorizing sex offenses is based on the offender's sexual interest. These sexual interests are typically deviant and can often be considered paraphilias. The Diagnostic and Statistical Manual, Fifth Edition (DSM-5; American Psychiatric Association [APA], 2013) defines a paraphilia as an "intense and persistent sexual interest other than sexual interest in genital stimulation or preparatory fondling with phenotypically normal, physically mature, consenting human partners" (p. 685). A paraphilia becomes a clinical disorder if it causes distress, impairment, or harm to the person with the paraphilia, or harm/risk of harm to another person. Commonly recognized paraphilias include pedophilic disorder (sexual interest in prepubescent children) and hebephilia (sexual interest in pubescent children; Phenix & Hoberman, 2016). Finally, a growing area of psychological theory and research is focused on internet sex offenders, who are typically involved in possessing and/or distributing child pornography.

Psychological Theories and Characteristics of Sex Offenders

The goal of psychological approaches to understanding sex offenders is to unearth the underlying reasons for committing sex offenses. Many theories address this topic, ranging from personality theories to developmental and cognitive behavioral theories. Some of the earliest personality theories regarding sexually deviant behavior come from psychoanalytic conceptualizations of personality.

Classical Freudian theory states that a person who is sexually deviant is acting out behaviors associated with fixation in an earlier psychosexual stage of development (Stinson, Sales, & Becker, 2008). Due to this developmental arrest, the person experiences the pleasure associated with the fixated stage through the deviant sexual act. A variation of this theory states that certain deviant sexual behaviors such as male exhibitionism provide relief from castration anxiety, whereby showing his genitals to unsuspecting others in public proves that he has not been castrated (Gabbard, 1994). A third variant of psychoanalytic theory states that cruelty and sexuality are instinctual traits controlled by the Id, which is the pleasure-seeking component of personality; when development problems occur, these traits may become associated with one another (Stinson et al., 2008). When such a linkage is not regulated by the Superego, which is the moral conscience of personality, and/or the Ego, which is the rational arm of personality, there is an increased risk of engaging in sexually aggressive or sadistic behaviors. In other words, there is a greater probability of nonconformity to social norms in ways that are detrimental to others. With regards to sexual interest in children, Freud theorized that a person who experiences trauma in childhood may have a stronger association with children. Freud explained this as involving a compensation for neglect during his/her own childhood or a projection of the idealized self onto the child. Sexual interest in children may also be the person's method of resolving internal conflicts that resulted from the traumatic childhood experience. For example, the person may view children as having a sexual value in order to resolve

any psychosexual conflicts that occurred during the person's own childhood (Stinson et al., 2008).

Object-relations theory also presents personality-based explanations for sexual offending. One variation of object-relations personality theory suggests that childhood experiences of maltreatment or trauma result in some children internalizing poor self-object relations, which is the relationship between an individual and an object-- usually another person (Stinson et al., 2008). This theory further explains that if the maltreatment or trauma experienced by the child is sexual in nature, this will likely change how the child views sexual relationships as a whole, and his or her specific role in sexual relationships, as he or she develops. As a result, the child may believe this altered perception of sexual relationships and roles as normal, and as an adult may pursue sexual relationships with children to fulfill this relationship. Another variation of object-relations personality theory posits that those who engage in deviant sexual behaviors have chosen to transfer their sexual arousal onto an object that is socially inappropriate or deviant (Stinson et al., 2008). If the child is exposed to a socially inappropriate or deviant object during critical early developmental stages, he or she internalizes the object as a source of sexual arousal despite social norms to the contrary. A third variation of object-relations personality theory suggests that people engage in deviant sexual behaviors or have deviant sexual interests due to misperceptions of key parts of sexual relationships. For example, Kernberg (1995) proposed that, in general, forbidden sexual objects tend to increase sexual desire for those objects. He

explains that sexual behaviors or interests that are socially prohibited increase frustration, and thus desire, in some individuals. Kernberg (1995) stated that people who engage in voyeurism or exhibitionism take this to an unhealthy extreme to satisfy their sexual desire.

Other theories suggest that some sex offenders, particularly those with psychopathic traits, had attachment difficulties or disorders during their development (Flowers, 2006; Stinson et al., 2008). This dysfunctional attachment pattern is associated with antisocial characteristics found amongst people who commit a variety of crimes, including sex offenses. Ward, Hudson, and Marshall (1996) and Burk and Burkhart (2003) posited three types of insecure attachment that are related to sexual offending: dismissive, preoccupied, and disorganized. According to the theorists, a dismissive attachment style increases the likelihood of hostility towards others, particularly women, and as a result increases the likelihood of committing violent offenses against women. A person with a preoccupied attachment style seeks approval from others and sexualizes relationships in which he/she has formed attachments. Therefore, if an individual forms an attachment with a child, he/she is likely to sexualize that relationship and commit a child sex offense. Theorists further suggest that individuals with a disorganized attachment style engage in deviant sexual behaviors in an effort to control and regulate the resulting intense negative emotions they experience. Terry (2013) added that individuals who are insecurely attached may engage in sexual activity to cope with feelings of loneliness. However, due to lack of experience with secure and

appropriate types of intimacy, those who are insecurely attached may engage in inappropriate sexual activities that are unwanted by the victim. Additionally, this dearth of experience with appropriate intimate relationships could result in a lack of empathy that may contribute to sexual offending (Ward, Hudson, Marshall, & Siegart, 1995). An attachment theory posited by Keenan and Ward (2000) suggested that due to their insecure attachment, sex offenders may lack awareness of and have difficulty understanding the needs and perspectives of others. As a result, they experience deficits in intimacy, empathy, and cognitions that increase their level of risk for engaging in inappropriate behaviors and interpersonal relationships.

Flowers (2006) also discussed criminal personality theory, which states that violent offenders, such as those who commit rape, find socially acceptable and typical interactions with others to be uninteresting. Thus, engaging in violent behaviors fulfills their need for excitement. Stoller (1975; 1987; 1991) suggested that individuals who engage in sexually deviant behaviors are doing so as an act of hostility or revenge. He explained that the individual seeks revenge against traumatic childhood experiences that endangered gender identity development and, for boys, made separation from his mother difficult or not fully possible. The individual successfully completes his revenge against his separation difficulties by reliving the trauma and then humiliating and/or degrading his victim.

In recent decades there has been a focus on behavioral and cognitive-behavioral theories of sexual offending. Behavioral theory states that, like any

behavior, sexually deviant behavior is conditioned through positive reinforcement (Kear-Colwell & Pollock, 1997). Furthermore, the sexually deviant behavior is maintained by the antecedents and consequences of the behavior; if sex offenders are presented with opportunities to offend and they do not perceive the consequences as adverse, the deviant sexual behavior is reinforced (Hunter & Becker, 1994; Lanyon, 1991). Another behavioral theory suggests that the presence of disturbed developmental history, disinhibitors that "allow" deviant sexual acts to happen, and deviant sexual fantasies result in the development and maintenance of deviant sexual behavior (Wolf, 1985).

Cognitive-behavioral theories have also been applied to explain sex offenses. Abel, Becker, and Cunningham-Rathner (1984) suggested that sex offenders engage in cognitive distortions that serve to validate their behavior. The cognitive distortions help decrease their level of guilt and "allow" them to continue to commit sex offenses by displacing the blame from themselves onto their victim or the environment. Ward and Keenan (1999) expanded on this theory and suggest that the cognitive distortions used by sex offenders are derivatives of implicit theories they possess about themselves, others, and their environment. For example, many child sexual offenders view children as sexual in nature. These offenders may hold the belief that children are driven by a desire for pleasure and thus enjoy sexual activities (Ward & Keenan, 1999). Other sex offenders may have an implicit theory that indicates they are entitled to sexual activity; therefore, their sexual needs are more important than the needs of the victim. Finally, an implicit

theory held by some sex offenders is that sexual activity can only be beneficial, not harmful. Therefore, they justify their actions with cognitive distortions positing that the victim was not harmed during the offense (Ward & Keenan, 1999).

Separate from the psychological theories about deviance is a body of literature focused on personality characteristics common to the sex offender population. For example, antisocial characteristics are commonly found among sex offenders (Phenix & Hoberman, 2016; Stinson et al., 2008). These include impulsivity, anger, callousness, and lack of empathy towards victims. Taken together, these characteristics appear to play a role in the offender's decision to commit crimes in general, including sex offenses. Narcissistic characteristics may also play a role in the commission of sex offenses. For example, someone who is highly narcissistic may feel entitled to sexual engagement, and thus will feel angry if rejected. As a result, the individual may need to prove, through sexual aggression, that he/she can have what he/she desires. Sadistic personality characteristics are also likely to influence the type of deviant sexual interests, such as physically harming or humiliating others. Other personality characteristics that are often seen in sex offenders are emotional instability and poor self-image; sexually deviant behavior may become a coping strategy to stabilize mood, or may have a positive influence on self-image (Phenix & Hoberman, 2016; Stinson et al., 2008). Finally, passivity and social detachment are often found in child sex offenders and non-contact offenders. Stinson et al. (2008) suggest that child sex offenders have a sexual interest in children partially because children are viewed as

acquiescent and nonthreatening. Similarly, given they possess these personality characteristics, those who commit non-contact offenses do so because there is a lesser need for interpersonal engagement or submissiveness.

In summary, there are a variety of psychological theories regarding the development of sexually deviant interests and engagement in sexually deviant behaviors. These psychological theories and identified personality characteristics give insight into possible reasons for the commission of sexual offenses and may guide the treatment of sex offenders.

Personality Assessment of Sex Offenders

Given the serious nature of sex offenses, psychologists in research and treatment settings conduct a variety of assessments with sex offenders to increase understanding of their personality characteristics, level of risk, and other factors that may inform dispositional decisions and treatment. The most commonly used objective personality assessment measures with the sex offender population include the various editions of the Minnesota Multiphasic Personality Inventory (MMPI), various editions of the Millon Clinical Multiaxial Inventory (MCMI), and the Personality Assessment Inventory (PAI). Davis and Archer (2010) conducted a meta-analysis of the sex offender literature involving the use of these three instruments to determine their effectiveness in distinguishing between sex offender subgroups. The researchers were unable to find conclusive evidence regarding the PAI's ability to distinguish between sex offender subgroups, partially because only one PAI study met their inclusion criteria. For the third edition of the MCMI

(MCMI-III), the researchers found variable information across the literature. They stated that it was difficult to determine the MCMI-III's ability to distinguish between sex offender subgroups because there is not a sex offender normative sample to compare to the non-sex offender norms for this instrument. For the MMPI, Davis and Archer (2010) found that some scales were able to distinguish between sex offender and non-sex offender groups. Overall, continued use of these objective personality instruments will help define future research needs to add to the body of literature, and will help inform treatment.

Development of the MMPI and MMPI-2

The various editions of the MMPI are objective personality measures that have utility across a variety of settings. The goals of these measures are to identify patterns of personality and psychopathology. The original MMPI (Hathaway & McKinley, 1943) was comprised of 566 true or false items that made up 13 scales—three validity and ten clinical scales (Friedman, Bolinskey, Levak, & Nichols, 2015). The purpose of the validity scales was to identify response style aberrations such as inconsistent responding and "faking good" or "faking bad" response styles, whereas the clinical scales were designed to help identify the presence, type, and severity of psychopathology. The MMPI scales were constructed using the criterion-keying method, which entailed administering test items to a criterion group that was selected based on a particular characteristic, such as a specific diagnosis, and to a normal comparison group. Items were only included on a scale if there was a statistical difference between the two groups.

The original normative sample consisted of 724 friends and family members of patients being seen at the outpatient department at the University of Minnesota Hospital. The criterion group was comprised of select psychiatric patients representing the diagnoses the MMPI scales were named after: hypochondriasis, depression, hysteria, psychopathic deviance, paranoia, psychasthenia, schizophrenia, and mania.

The release of the MMPI was followed by a proliferation of research on the test measure that also led to the development of a multitude of new scales. Specifically, these included the development of subscales for clinical scales that had heterogeneous content (Harris & Lingoes, 1955), a set of content scales (Wiggins, 1966), and a wide range of supplementary scales (Barron, 1953; Gough, McClosky, & Meehl, 1951, 1952; Kleinmuntz, 1961; MacAndrew, 1965; Megargee, Cook, & Mendelsohn, 1967; Welsh, 1956), many of which became incorporated into the standard test scales.

The MMPI-2 (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989) is a revision of the original MMPI focused on re-norming and updating the original measure. It consists of 567 true-false items that make up eight validity scales, the ten clinical scales, the original set of 28 Harris-Lingoes subscales (Harris & Lingoes, 1955, 1968), 15 new content scales (Butcher, Graham, Williams, & Ben-Porath, 1990), 16 supplementary scales—eight carried over from the MMPI and eight new to the MMPI-2 (Barron, 1953; Cook & Medley, 1954; Gough, McClosky, & Meehl, 1951, 1952; Hjemboe, Butcher, & Almagor, 1992; Keane,

Malloy, & Fairbank, 1984; Kleinmuntz, 1961; MacAndrew, 1965; Megargee, Cook, & Mendelsohn, 1967; Peterson & Dahlstrom, 1992; Schlenger & Kulka, 1987; Weed, Butcher, McKenna, & Ben-Porath, 1992; Welsh, 1956), and nine restructured clinical (RC) scales (Tellegen et al., 2003). Five Personality Psychopathology Five (PSY-5) scales were subsequently added (Harkness, McNulty, & Ben-Porath, 1995). The MMPI-2 was re-standardized from the MMPI but had minimal changes in scale composition (Friedman, et al., 2015). The new normative sample was comprised of 2,600 individuals ages 18-85 from the general United States population. When creating this new version of the MMPI, the test developers replaced some items from the original MMPI that were obsolete and modified others in an effort to increase item clarity and to use modernized language. They also created some new scales to help identify the presence of clinical problems that were not identified in the original MMPI. Finally, the test developers implemented uniform T-scores that allow for scale scores to be compared more precisely than linear T-scores did on the original MMPI.

Given the multitude of scales on both the MMPI and MMPI-2, the test developers and other researchers identified methods to refine MMPI profile interpretation. One of these methods included the development of research-based correlates for two-point and three-point codetypes, that is, combinations of clinical scales. Codetypes are comprised of the two and/or three highest scores present in a profile, and give more in-depth information regarding an individual's psychological functioning and personality characteristics.

Development of the MMPI-2-RF

The Minnesota Multiphasic Personality Inventory- 2nd Edition- Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008/2011) is the most recent revision of the MMPI. The purpose for restructuring the MMPI-2 was to draw from the same item pool and introduce a version of the MMPI-2 that efficiently identifies and distinguishes between a variety of personality traits and psychopathology. This revision allowed for the showcasing of the RC scales that had been introduced in the MMPI-2, and for the development of new scales that represent overarching dimensions of functioning. The MMPI-2-RF consists of 51 scales—nine Validity scales and 42 substantive scales—comprised from 338 True-False items. The nine Validity scales include seven scales that are slightly revised from the MMPI-2 and two that are new to the MMPI-2-RF. The 42 substantive scales include the nine Restructured Clinical (RC) scales from the MMPI-2, and 33 scales that are new to the MMPI-2-RF. These new scales include three Higher-Order scales, 23 Specific Problems scales, two Interest scales, and five revised Personality Psychopathology Five (PSY-5) scales. Descriptions for the MMPI-2-RF scales are in Table 1 below. It is important to note that due to its vastly different scale structure, the MMPI-2-RF is currently viewed as an alternative to the MMPI-2, not as a replacement.

Table 1

MMPI-2-RF scales and measured characteristics

Scale Name	Measured Characteristic
Validity Scales	
CNS (Cannot Say) Raw Score	Number of omitted or double marked responses
VRIN-r (Variable Response Inconsistency- revised)	Inconsistent or random responding
TRIN-r (True Response Inconsistency- revised)	Response bias or fixed responding
F-r (Infrequent Responses- revised)	Infrequent responses in the general population
Fp-r (Infrequent Psychopathology Responses- revised)	Infrequent responses in psychiatric populations
Fs (Infrequent Somatic Responses)	Unusual physical complaints
FBS-r (Symptoms Validity- revised)	Non-credible somatic and cognitive complaints
RBS (Response Bias Scale)	Non-credible memory complaints
L-r (Uncommon Virtues- revised)	Rarely claimed moral attributes or activities
K-r (Adjustment Validity- revised)	Uncommonly high level of psychological adjustment
Higher-Order (H-O) Scales	
EID (Emotional/Internalizing Dysfunction)	Problems associated with mood and affect
THD (Thought Dysfunction)	Problems associated with disordered thinking
BXD (Behavioral/Externalizing Dysfunction)	Problems associated with under-controlled behavior
Restructured Clinical (RC) Scales	
RCd (Demoralization)	General unhappiness and dissatisfaction
RC1 (Somatic Complaints)	Diffuse physical health complaints
RC2 (Low Positive Emotions)	Lack of positive emotions
RC3 (Cynicism)	Beliefs that others are bad and not to be trusted
RC4 (Antisocial Behavior)	Rule breaking and irresponsible behaviors
RC6 (Ideas of Persecution)	Self-referential beliefs that others pose a threat
RC7 (Dysfunctional Negative Emotions)	Maladaptive anxiety, anger, and irritability
RC8 (Aberrant Experiences)	Unusual perceptions or cognitive disorder
RC9 (Hypomanic Activation)	Over-activation, aggression, impulsivity, grandiosity

(continues)

Table 1 (cont.)

Scale Name	Measured Characteristic
Specific Problems (SP) Scales	
Somatic/Cognitive Scales	
MLS (Malaise)	Overall sense of physical debilitation, poor health
GIC (Gastrointestinal Complaints)	Nausea, recurring upset stomach, and poor appetite
HPC (Head Pain Complaints)	Head and neck pain
NUC (Neurological Complaints)	Dizziness, weakness, paralysis, loss of balance, etc.
COG (Cognitive Complaints)	Memory problems, difficulties concentrating
Internalizing Scales	
SUI (Suicidal/Death Ideation)	Reports of suicidal ideation, recent suicide attempts
HLP (Helplessness/Hopelessness)	Belief that problems cannot be solved
SFD (Self-Doubt)	Lack of self-confidence, feelings of uselessness
NFC (Inefficacy)	Belief that one is indecisive and inefficacious
STW (Stress/Worry)	Experiences of stress and worry
AXY (Anxiety)	Pervasive anxiety, frights, frequent nightmares
ANP (Anger Proneness)	Easily angered, impatient with others
BRF (Behavior-Restricting Fears)	Fears that significantly inhibit normal behavior
MSF (Multiple Specific Fears)	Fear of blood, fire, thunder, etc.
Externalizing Scales	
JCP (Juvenile Conduct Problems)	Difficulties at school and at home, stealing
SUB (Substance Abuse)	Current and past misuse of alcohol and drugs
AGG (Aggression)	Physically aggressive, violent behavior
ACT (Activation)	Heightened excitation and energy level
Interpersonal Scales	
FML (Family Problems)	Conflictual family relationships
IPP (Interpersonal Passivity)	Being unassertive and submissive
SAV (Social Avoidance)	Avoiding or not enjoying social events
SHY (Shyness)	Feeling uncomfortable and anxious around others
DSF (Disaffiliativeness)	Disliking people and being around them
Interest Scales	
AES (Aesthetic-Literary Interests)	Literature, music, theater interests
MEC (Mechanical-Physical Interests)	Interests in fixing and building things, the outdoors, sports

(continues)

Table 1 (cont.)

Scale Name	Measured Characteristic
Personality Psychopathology Five (PSY-5) Scales	
AGGR-r (Aggressiveness- revised)	Instrumental, goal-directed aggression
PSYC-r (Psychoticism- revised)	Disconnection from reality
DISC-r (Disconstraint- revised)	Under-controlled behavior
NEGE-r (Negative Emotionality/Neuroticism-revised)	Anxiety, insecurity, worry, and fear
INTR-r (Introversion/Low Positive Emotionality-revised)	Social disengagement and anhedonia

Note. Adapted from Ben-Porath & Tellegen, 2008/2011

Similar to the earlier versions of the MMPI, the validity scales of the MMPI-2-RF were derived to determine the profile's appropriateness for interpretation. These scales assess for inconsistent responding, response bias, exaggeration of problems, and minimization of problems. These scales also give information regarding the examinee's level of defensiveness. VRIN-r, the measure of inconsistent responding, is comprised of 53 item pairs—14 less than VRIN on the MMPI-2, and only 13 of which correspond with those on the MMPI-2 (Friedman et al., 2015; Graham, 2011). There are many factors that could contribute to inconsistent responding, such as carelessness, distraction, fatigue, errors in responding, and reading or language difficulties (Friedman et al., 2015). TRIN-r, the measure of response bias, is comprised of 26 item pairs, which is three more than TRIN on the MMPI-2, and contains only five item pairs that correspond with those of the MMPI-2 (Friedman et al., 2015; Graham, 2011). The MMPI-2-RF also has validity measures that indicate self-unfavorable responding. F-r, the measure of infrequent responses, consists of 32 items, which is 28 less than scale F on the MMPI-2. Twenty-one of the items of F-r can be found on either scale F or

FB on the MMPI-2. Fp-r is comprised of 21 items, six less than Fp on the MMPI-2, and shares 17 items with Fp. The restructuring of this scale decreased item overlap with other scales, and added three new items to increase the scale's performance. The Fs scale is comprised of 16 items and often is interpreted in conjunction with the FBS-r scale, which is comprised of 30 items—13 less than FBS on the MMPI-2; all items on FBS-r are from FBS. RBS, another measure of response bias, is new to the MMPI-2-RF and is comprised of 28 items. Finally, there are validity scales that measure self-favorable reporting. L-r is comprised of 14 items, 11 of which are shared with the L scale on the MMPI-2, and K-r is comprised of 14 items, all of which can be found on the K scale of the MMPI-2. These measures of response bias and self-unfavorable/self-favorable responding help detect exaggeration or minimization of difficulties. Test takers may engage in these response styles depending on what is at stake. For example, an individual whose career depends on "passing" a psychological evaluation may minimize difficulties so his/her career is not negatively impacted. Conversely, an individual who is looking to receive benefits, such as Social Security Disability income, may exaggerate difficulties in order to "prove" he/she has a need for these benefits.

The substantive scales of the MMPI-2-RF provide the interpreter with a wide range of specific clinical information. The Higher-Order scales assess for level of emotional distress, the presence of a thought disorder or difficulty, and acting out behaviors. EID, which is comprised of 41 items, measures emotional distress and discomfort (Friedman et al., 2015; Graham, 2011). THD, which is

comprised of 26 items, measures thought dysfunction. The third Higher-Order scale, BXD, is comprised of 23 items that measure acting-out behaviors.

The Restructured Clinical (RC) scales of the MMPI-2-RF are the same as those on the MMPI-2 (Friedman et al., 2015; Graham, 2011). These scales assess for a variety of personality features such as somatic preoccupation and complaints (RC1), lack of positive emotions (RC2), cynicism and mistrust of others (RC3), impulsivity and disregard for authority (RC4), maladaptive negative emotions (RC7), thought difficulties (RC6), unusual perceptions (RC8), and over-activation (RC9). In addition, these scales give information regarding the examinee's overall level of maladjustment.

The Specific Problems (SP) scales are organized into four clusters: Somatic/Cognitive, Internalizing, Externalizing, and Interpersonal scales. The Somatic/Cognitive scales assess the examinee's overall sense of health as well as any specific physical or cognitive complaints reported by the examinee. MLS is comprised of eight items, and high scores indicate complaints of poor health, decreased energy, weakness, and tiredness (Friedman et al., 2015; Graham, 2011). GIC is comprised of five items, and high scores indicate frequent gastrointestinal complaints. HPC is comprised of six items, and high scores indicate complaints of head pain. NUC is comprised of ten items, high scores on which indicate vague complaints of neurological symptoms. COG is comprised of ten items, on which high scores indicate cognitive complaints.

The Internalizing scales evaluate the examinee's internal psychological disturbances. These include suicidal ideation, feelings of helplessness and hopelessness, lack of self-confidence, poor self-concept, feelings of incapability, and low frustration tolerance. These scales also help the test interpreter understand the examinee's experiences of stress, worry, and anxiety. In addition, the Internalizing scales help identify the presence of specific fears as well as the impact these fears have on the examinee's life, such as restricting normal behavior or avoiding situations that are perceived to be harmful. SUI is comprised of five items, and an endorsement of at least one item is indicative of suicidal preoccupation (Friedman et al., 2015; Graham, 2011). HLP is comprised of five items, high scores on which show that the respondent reportedly believes the future will be unpleasant. SFD is comprised of four items, and high scores indicate reported feelings of inferiority or insecurity. NFC consists of nine items; high scores indicate passivity, low scores indicate self-reliance. STW is comprised of seven items, and higher scores reflect higher reported levels of stress and worry. AXY consists of five items, and high scores reflect anxiousness. ANP contains seven items, and high scores reflect tendencies toward being argumentative and holding grudges. BRF is comprised of nine items, high scores on which indicate the respondent's fear is heightened to the extent that it restricts his/her activities. MSF consists of nine items; high scores reflect having multiple fears and being risk-aversive.

The Externalizing scales assess acting out behaviors. This cluster includes behaviors in both the past and present. Acting out behaviors that fall into this cluster include history of delinquent behavior as a juvenile, past or current substance abuse, physical aggression, and heightened excitation and energy levels. JCP consists of six items, and a high score on this scale is indicative of problem behaviors in school (Friedman et al., 2015). SUB is comprised of seven items, high scores on which result from admissions by the respondent of past or current substance use. AGG contains nine items; high scores reflect reports of aggressive actions towards others. ACT consists of eight items, and high scores represent increased energy and excitement.

The Interpersonal Scales assess different areas of interpersonal functioning, such as relationships and social tendencies, familial conflicts, engagement in unassertive or submissive behaviors, avoidance or dislike of social activities, discomfort and anxiety in social situations, and level of interest in other people. FML consists of ten items; high scores indicate past and/or current family conflict, whereas low scores indicate past and present family relationships that are without conflict (Friedman et al., 2015; Graham, 2011). IPP contains ten items, high scores on which reflect self-reports of being unassertive; low scores reflect self-reports of being assertive. SAV is also comprised of ten items, and high scores represent lack of enjoyment in social activities and interactions. Conversely, low scores on SAV represent enjoyment of social interactions and activities. SHY consists of seven items that measure social anxiety. High scores on this scale indicate anxiety or

discomfort in social situations, and low scores indicate little or no social anxiety or discomfort. Finally, DSF is comprised of six items, high scores on which are reflective of disliking being in the presence of others. The MMPI-2-RF also contains two Interest scales. These measure the examinee's level of Aesthetic-Literary interests (AES; seven items) and Mechanical-Physical interests (MEC; nine items).

The final set of scales are the Personality Psychopathology Five (PSY-5) scales, which were slightly revised from those presented in the MMPI-2 (Friedman et al., 2015). These scales focus on specific personality features associated with psychopathology. These include goal-directed verbal and physical aggression (AGGR-r), disconnection from reality (PSYC-r), impulsivity and lack of self-control (DISC-r), predisposition to negative emotions such as anxiety, worry, and fear (NEGE-r), and social disengagement and anhedonia (INTR-r). AGGR-r is comprised of 18 items, 14 of which can be found on AGGR of the MMPI-2 (Friedman et al., 2015; Graham, 2011). Moderately high scores on this scale indicate assertiveness and self-confidence, but as the scores increase there is a greater likelihood of aggression and domineering behavior. PSYC-r consists of 26 items, 17 of which were also on PSYC of the MMPI-2. High scores on PSYC-r reflect unrealistic thinking, unusual thoughts, and perceptual disturbances. DISC-r is comprised of 20 items, 13 of which were also on DISC of the MMPI-2; high scores reflect behavioral disconstraint. NEGE-r consists of 20 items, 14 of which were also on the NEGE scale of the MMPI-2. High scores on NEGE-r reflect self-

reports of emotional distress. The final scale on the MMPI-2-RF is INTR-r. This scale is comprised of 20 items, 16 of which can be found on INTR of the MMPI-2. High scores indicate a lack of positive emotional experiences.

Clinical and Forensic Applications

The MMPI-2 has been used extensively in a broad range of settings and applications. Clinical applications can be found in mental health settings, medical settings, and pre-employment screenings for high-risk positions (Sellbom & Ben-Porath, 2006). In mental health settings, the MMPI-2 is used to help identify the presence of psychological disturbances in order to formulate diagnoses; the test results are also used in developing treatment plans and case conceptualizations. In medical settings, the MMPI-2 can be used to understand the psychological effects of having medical problems, and the role of psychological distress on physical health. Knowing these psychological factors can also give insight into how well the patient may respond to medical interventions and adjust psychosocially after receiving a diagnosis or intervention (Sellbom & Ben-Porath, 2006). The MMPI-2 can also be used to screen for substance abuse, which is important to know when prescribing medications. Another application of the MMPI-2 is in pre-employment screenings. The test results in this application are used to identify the presence of specific psychological symptoms that may put the safety of the community at risk. Careers that commonly include pre-employment screenings are pilot, law enforcement officer, court officer, and the military.

Applications of the MMPI-2 and MMPI-2-RF in forensic settings include evaluations for competency to stand trial, criminal responsibility, risk assessment, child custody arrangements, personal injury compensations, and mental health screenings in correctional facilities (Grover, 2011; Sellbom & Ben-Porath, 2006; Wheeler & Archer, 2013). Test results can provide information about the probability of malingering (from the validity scales), and about the likelihood the examinee currently has a mental illness that could impede his/her understanding of the court proceedings (from the substantive scales; Sellbom & Ben-Porath, 2006). In criminal responsibility assessments, the MMPI-2 can be used to identify attempts at malingering disorder as well as true psychopathology found in chronic and severe disorders that may have been present at the time of the offense (Sellbom & Ben-Porath, 2006). The presence of a chronic or severe disorder can also be corroborated or found unsubstantiated if the current test results can be compared to previous test results (i.e., if the defendant has had prior contact with the mental health system and was administered an MMPI-2).

A body of literature suggests people with certain forms of psychopathology are more likely to act violently than people who are not diagnosed with a mental illness (Sellbom & Ben-Porath, 2006). Thus, the MMPI-2 is useful in conducting risk assessments as it can help identify the presence of psychopathology associated with increased risk of violence; research has also shown some profile configurations are associated with increased risk (Sellbom & Ben-Porath, 2006). In child custody evaluations, the MMPI-2 can yield information regarding the parent's

level of defensiveness, as well as the presence of psychopathology that may negatively impact his or her ability to be an effective caregiver. In personal injury claims, the MMPI-2 is used to assess for malingering psychological distress, the presence of psychological and emotional difficulties, and for symptoms of Posttraumatic Stress Disorder.

The MMPI-2 and MMPI-2-RF are particularly useful in correctional settings that conduct mental health screenings as they can be administered in a group setting. The primary advantages of these instruments are that test results can reveal information that is important for the benefit of the inmate within the correctional facility; for example, the presence of certain types of psychopathology may determine where the inmate is housed and what mental health services should be provided. A secondary benefit of these instruments is that examiners are able to maximize the number of inmates who complete the test at one time, thus minimizing the need for security personnel because corrections officers are assigned to oversee the group rather than each individual inmate who is being assessed (Grover, 2011). It is also noteworthy that research has been conducted to determine the MMPI-2-RF's construct validity as a predictor of global psychopathy, which refers to a personality pattern of engaging in antisocial behavior, lack of empathy and remorse, and egocentricity, and its use as a predictor of drug court completion (Wheeler & Archer, 2013).

MMPI Research on Sex Offenders

The research literature indicates sex offenders are a heterogeneous group. Consequently, efforts have been made to identify distinct subgroups of sex offenders on the basis of the Minnesota Multiphasic Personality Inventory (MMPI; Anderson, Kunce, & Rich, 1979; Duthie & McIvor, 1990; Hall, Graham, & Shepherd, 1991; Heersink & Strassberg, 1995; Kalichman, Craig et al., 1989; Kalichman, Dwyer, Henderson & Hoffman, 1992; Kalichman, Szymanowski, McKee, Taylor, & Craig, 1989; Shealy, Kalichman, Henderson, Szymanowski, & McKee, 1991). Sex offenders differ based on their personality characteristics and also have diverse demographic features, offense types, and criminal offense histories.

Anderson et al. (1979) examined MMPI profiles of 92 adult male sex offenders who were placed on a ward in a psychiatric hospital for the criminally insane, and found three different subgroups based on profile patterns. The researchers noted that 88 of the 92 profiles could be categorized into one of these subgroups, or clusters (See Table 2 for patterns of scale scores that comprise each cluster). The first cluster, titled the F, Sc type, was characterized by social maladjustment and poor judgment. Anderson et al. (1979) found that sex offenders in this cluster had a shorter history of military service, tended to have inferior vocational adjustment, and more often committed sex offenses that included blatantly degrading the victim. The primary diagnosis for this subgroup was no mental disorder. The second cluster, titled the Pd, Ma type, was characterized as

having less severe problems with overall adjustment and having more stable vocational functioning but being high in impulsivity. This subgroup was more likely to receive a psychiatric diagnosis and was more likely to be classified as sexually deviant. The third cluster, titled the D, Pd type, was characterized by marginal social adjustment. Sex offenders categorized into this subgroup were found to be less educated, older, have committed a higher amount of serious crimes, and tended to have poorer social adjustment due to alcohol abuse; significantly more sex offenders in this group were diagnosed with antisocial personality disorder. Overall, the researchers concluded that while these subgroups could not be meaningfully classified based on type of crime, they could be classified based on MMPI profile patterns.

Duthie and McIvor (1990) conducted a cluster analysis of MMPI profiles of 90 child molesters; the analysis revealed eight cluster types. The first cluster was titled the Characterological-Avoidant type. These sex offenders exhibited poor social adjustment and were described as having ineffective relationships with others. They tended to be shy and socially isolated, and did not use physical violence or force during the offense. The majority of sex offenders in this cluster committed their offenses when experiencing identifiable stressors, suggesting impulsivity and a lack of healthy coping strategies.

Duthie and McIvor (1990) identified the second cluster as the Characterological-Average type. The sex offenders in this cluster were found to depend on their family members for emotional and sexual needs more profoundly

than the sample average. This group also had the highest rate of male victims and a higher ratio of victims to offender compared to the rest of the sample; despite this above average victim to offender ratio, the sex offenders in this group had a below average number of convictions. The third cluster, titled the Characterological-Suspicious type, was characterized by a fairly low recidivism rate and episodic occurrence of their offenses.

Duthie and McIvor's (1990) fourth cluster was titled the Psychotic-Aggressive type. The sex offenders in this cluster were the youngest, had the highest victim to offender ratio, and had a fairly high recidivism rate. During their offenses, they tended to use physical violence or force and most reported they did not feel guilty about their offenses. The fifth cluster, titled the Normal-Episodic type, was noted by Duthie and McIvor (1990) to be a typical profile of sex offenders, excluding rapists. Sex offenders in this cluster only exhibited minor differences when compared to the average child molester. The sixth cluster was titled the Normal-Repressed type. Sex offenders in this cluster had one of the lowest victim to offender ratios, a fairly low recidivism rate, and the majority felt guilty about their offenses. They tended to repress and underreport psychopathology, and identified situational stressors that contributed to their offenses.

Duthie and McIvor's (1990) seventh cluster, titled the Normal-Avoidant type, was characterized by the lowest victim to offender ratio and were noted to be shy and to be socially ineffective. The eighth cluster was titled the Psychotic-

Withdrawn type. The majority of the sex offenders in this cluster were shy and socially ineffective, isolated from their families, had criminal histories, and had a history of physical or sexual abuse in childhood. Additionally, sex offenders in this cluster had a relatively low recidivism rate.

Hall et al. (1991) utilized three methods to examine MMPI profile patterns of 261 sex offenders. First, they compared profiles of those with adult victims and those with child victims. Then they analyzed two-point codetypes, the two scales with the highest scores of at least 70T, to determine if any were distinctive characteristics of those with adult victims versus those with child victims. The researchers subsequently conducted a cluster analysis of the MMPI profiles in an effort to establish a classification system of sex offenders, and to determine the reliability and validity of the classifications. The researchers first found that there were no significant differences in profile patterns of sex offenders with adult victims and those with child victims when controlling for the sex offenders' ages. Independent of whether the victims were adults or children, five common two-point codetypes were found for the sample: 4-5/5-4, 4-8/8-4, 4-9/9-4, 2-4/4-2, and 4-7/7-4. To conduct the cluster analysis, the researchers first randomly divided the sample in half. Cluster analysis of the first half revealed two clusters. The sex offenders in the first cluster tended to be sexually maladjusted and exhibited deviant sexual behavior and acted out impulsively (Hall et al., 1991). They also presented with a low frustration tolerance and responded to frustration with aggression. The second cluster was described by Hall et al. (1991) as likely having

arrested psychosexual development due to their exceedingly close relationships with their mothers. The researchers also noted that these sex offenders were more likely to abuse alcohol and act out when intoxicated. Overall, the sex offenders in the second cluster were more psychologically disturbed than those in the first cluster. In an effort to cross-replicate the study Hall et al. (1991) then conducted a cluster analysis with the second half of the profiles, which yielded the same results. However, when the researchers recombined the sample, the clusters were not externally validated based on demographic and criminological factors. Taken together, the researchers concluded based on the results of the study that psychological factors of sex offenders evident in MMPI profile classifications may have discriminative value.

Heersink and Strassberg (1995) conducted a cluster analysis on the MMPI profiles of 122 adult men who were convicted of a sexual offense against a child under age 15. The results revealed three clusters based on MMPI profiles patterns. Sex offenders in the first cluster were found to be impulsive, self-centered, and nonconforming. They exhibited a low frustration tolerance, poor judgment, and had difficulty applying knowledge from one experience to another. Additionally, they presented with low levels of empathy and tended to rationalize their offenses. Sex offenders in the second cluster reported experiencing chronic subjective distress, depression, anxiety, and tension. Members of this cluster were also impulsive and had impaired judgment. Heersink and Strassberg (1995) stated that members of this cluster experience frustration and guilt when they cannot meet the

standards they set for themselves and are prone to low self-esteem and feelings of inadequacy. Additionally, they tended to be socially withdrawn and have difficulty forming relationships with others. The third cluster was characterized as the most psychologically disturbed. Sex offenders in this cluster tended to be anxious, engage in obsessive worrying, and lack coping strategies to diffuse their high levels of subjective distress. Furthermore, members of this cluster exhibited impaired judgment, difficulty with attention and concentration, and reported confusion.

Kalichman, Szymanowski et al. (1989) conducted a cluster analysis on MMPI profiles of 120 adult men who were incarcerated for committing a sexual offense. Results revealed five subgroups based on profile patterns. The researchers indicated sex offenders within the first cluster are similar to various other subgroups of criminal offenders. They tended to commit their sexual offenses while committing other crimes, suggesting their intent to commit a sexual offense was secondary to other criminal activities. Sex offenders in the first cluster were the least psychologically disturbed and reported lower levels of deviant sexual interests. Regarding the second cluster, Kalichman, Szymanowski et al. (1989) suggested sex offenders in this cluster were similar to a prototypical rapist who is primarily motivated to rape, and whose victim is a stranger. Members of this cluster tended to have a high number of antisocial traits and were highly aggressive. The third cluster was characterized by strong antisocial and hostile traits, but sex offenders in this cluster did not have other notable psychological problems or deviant sexual interests. Similar to the first cluster, participants in this

cluster tended to commit their sex offenses while committing other crimes. Sex offenders in the fourth cluster presented with a wide range of deviant behaviors and personality characteristics. They tended to abuse substances and exhibited various sexually deviant interests. The fifth cluster was noted to have overall higher scores compared to the other clusters, and sex offenders in this classification were noted to have the greatest number and severity of psychological problems. Sex offenders in this cluster tended to abuse substances and have a wide range of deviant sexual interests. Results showed those in cluster two were least likely to have committed a sexual offense during a burglary or robbery; results did not reveal any other significant differences based on crime characteristics.

Kalichman, Craig et al. (1989) examined MMPI profiles of 123 adult criminal sex offenders in an effort to classify them into subgroups based on profile patterns. Results showed five distinct subgroups based on profile patterns. The researchers indicated that clusters one and two were characterized by impaired impulse control and less deviant sexual interests. They indicated that sex offenders in these clusters were similar to non-sexual criminal offenders. Kalichman, Craig et al. (1989) stated that sex offenders in the third cluster tended to be hostile, unstable, and dangerous. Additionally, they exhibited antisocial traits and were aggressive in nature. The researchers reported that sex offenders in the fourth cluster experienced difficulty forming relationships and were distrustful of others. They tended to sexually act out and had impaired impulse control, which was exacerbated by their need for dominance and deviant sexual interests (Kalichman,

Craig et al., 1989). The fifth cluster was characterized by severe psychological disturbances and disordered thought processes. They have a wide variety of deviant sexual interests and exhibit impaired social skills. The researchers found that sex offenders classified into clusters one, two, and three were significantly more likely to have committed a sexual offense during a burglary or robbery. They also found those in clusters one and two had the lowest levels of sexual deviance, whereas those in clusters four and five had the highest levels of sexual deviance; those in clusters four and five did not significantly differ from each other on level of sexual deviance.

Kalichman, Craig et al. (1989) conducted a second cluster analysis with the same sample, and found that 59 percent of the sample was correctly reclassified into their original clusters. The researchers noted that the largest misclassification occurred between clusters one and two, suggesting they are not easily discriminated from each other and should be classified as a single cluster. Lastly, the researchers indicated the five clusters in this study replicated the clusters found in a previous study by Kalichman et al. (1989).

Kalichman et al. (1992) examined MMPI profiles of 110 adult men who committed sex offenses against children age 16 or younger. Cluster analysis results revealed five clusters. Sex offenders in clusters one and four were found to be the least psychologically disturbed, reflected in few high scores, and presented with the lowest sexual deviancy. Sex offenders in the first cluster were the most likely to have solely offended against girls. Conversely, sex offenders in cluster three were

the least likely to have solely offended against girls. Sex offenders in clusters two and five were the most psychologically disturbed. Those in the second cluster were highly cognitively disturbed, reflected by high scores on scales reflecting thought difficulties, and had the highest levels of sexual maladjustment. Sex offenders in the fifth cluster were found to be sexually aggressive and impulsive, and to have the highest number of deviant sexual interests.

Shealy et al. (1991) examined MMPI profile patterns of 90 men who were incarcerated and convicted of sexual offenses against prepubescent girls age 13 or younger. The researchers identified four clusters based on MMPI profile patterns, and noted the clusters can be further differentiated on psychosexual, affective, and psychosocial factors. The researchers suggested the profile pattern of the first cluster was similar to those of individuals who are impulsive and have antisocial personalities. For this reason, the profile patterns of individuals in this cluster may not differ from those of nonsexual offending criminals. They also noted individuals in this cluster had the highest levels of self-esteem. Shealy et al. (1991) found that individuals in cluster two tended to hold onto feelings of resentment towards others, tended to be suspicious and guarded, and were sensitive to others' opinions. Sex offenders in cluster three tended to have higher levels of anger and hostility, judgment difficulties, and more disturbed sexual thoughts and obsessions. They also noted sex offenders in this cluster were more likely to victimize children who were strangers compared to the first two clusters. The researchers stated that the sex offenders in cluster four tended to exaggerate psychopathology, have higher

levels of anger and anxiety, and have less control over their anger than individuals in the first three clusters. They were also significantly more likely to receive mental health services and to have suicide attempts. Overall, the researchers suggested there are two general subgroups of child sex offenders, indicating that clusters one and two may be combined into a type representing higher levels of impulsivity and guardedness, and clusters three and four may be combined into a type representing higher levels of anger and psychological disturbance. They indicated that from these two broad subgroups more specific discriminations can be made. Table 2 below summarizes the findings of MMPI cluster analytic studies of sex offenders, and includes specific MMPI scales/scores found for each group.

Table 2

MMPI cluster analysis results

Author(s)/Sample	**Cluster Analysis Results**
Anderson et al. (1979); 92 adult male sex offenders in a psychiatric hospital for the criminally insane	**Cluster 1:** extremely high scores on Infrequency (F) and Schizophrenia (Sc) **Cluster 2:** high scores on Psychopathic Deviate (Pd) and Mania (Ma) **Cluster 3:** high scores on the neurotic triad (scales Hypochondriasis (Hs), D, and Hysteria (Hy)) and Pd
Duthie and McIvor (1990); 90 child molesters	**Cluster 1:** high scores on D and Pd, subclinical score on Psychasthenia (Pt) **Cluster 2:** high scores on Pd and Masculinity-Femininity (Mf) **Cluster 3:** scores above 80T on Hs and Pd, scores between 70-80T on Hy, Pt, and Sc **Cluster 4:** high score on F, Sc score around 95T, scores around 80T on Pd and Paranoia (Pa) **Cluster 5:** Pd around 65T, all other scales well below 60T

(continues)

Table 2 (cont.)

Author(s)/Sample	Cluster Analysis Results
Duthie and McIvor (1990); 90 child molesters (cont.)	**Cluster 6:** Lie (L) and Correction (K) between 60-70T, Hy and Pd between 60-65T **Cluster 7:** subclinical scores on Mf, Sc, and Social Introversion (Si) **Cluster 8:** D and Sc at least 90T, F, Pd, and Pt above 70T
Hall et al. (1991); 261 sex offenders	**Cluster 1:** scores within normal limits, Pd highest **Cluster 2:** multiple elevations, highest scores on Sc, Pd, D, and Pt
Heersink and Strassberg (1995); 122 adult men convicted of a sexual offense against a child under age 15	**Cluster 1:** scores within normal limits, Pd highest **Cluster 2:** elevations on 8 of 10 clinical scales, highest scores on D, Pt, and Sc (all above 80T) **Cluster 3:** high scores on 5 of 10 clinical scales, highest scores on Sc, Pt, and Ma
Kalichman, Szymanowski et al. (1989); 120 adult men incarcerated for committing a sexual offense	**Cluster 1:** scores within normal limits, Pd and Ma highest **Cluster 2:** high scores on D, Pd, Pa, and Sc **Cluster 3:** Pd single high score **Cluster 4:** high scores on F, Pd, Sc, and Ma, between 65-70T on Mf, Pa, and Pt **Cluster 5:** high scores on D, Pd, Pa, Pt, Sc, and Ma
Kalichman, Craig et al. (1989); 123 adult criminal sex offenders	**Cluster 1:** scores within normal limits, Pd and Ma highest **Cluster 2:** Pd single high score **Cluster 3:** high scores on Hs, D, Pd, Pa, and Sc **Cluster 4:** high scores on Pd, Sc, and Ma, subclinical scores on Pa and Pt **Cluster 5:** high scores on D, Pa, Pt, Sc, and Ma
Kalichman et al. (1992); 110 adult men who committed sex offenses against children age 16 or younger	**Cluster 1:** scores within normal limits **Cluster 2:** high scores on D, Pd, Mf, Pa, Pt, Sc, and Si **Cluster 3:** high scores on D, Pd, and Mf **Cluster 4:** scores within normal limits, Hy and Mf highest **Cluster 5:** high scores on Pd, Mf, Sc, and Ma

(continues)

Table 2 (cont.)

Author(s)/Sample	Cluster Analysis Results
Shealy et al. (1991); 90 men incarcerated and convicted of sexual offenses against prepubescent girls age 13 or younger	**Cluster 1:** scores within normal limits, Pd and Ma highest **Cluster 2:** Pa single high score, Hs, D, Hy, and Pd subclinical **Cluster 3:** high scores on Pd, Pa, and Sc, subclinical scores on Hy, Pt, and Ma **Cluster 4:** high scores on Hs, D, Pd, Pa, Pt, Sc, and Ma

Researchers have also examined MMPI profiles of sex offenders as a single group in order to describe overarching profile patterns. Erickson et al. (1987) studied two-point code types of MMPI profiles obtained from a sample of 403 convicted sex offenders. The researchers compared the frequencies of two-point code types found in the sex offender profiles with those of psychiatric patients and prisoners found in previous studies. In this comparison, they found that the sex offender sample had a significantly higher frequency of the 4-8/8-4 code type than the prisoner sample. They also noted that the 4-9/9-4 code type was found equally in both samples. Also noteworthy was that 11 percent of the sex offender sample presented with a 4-5/5-4 profile, which the authors state is a code type usually found in less than two percent of non-sex offending samples. All other code types were found to be distributed similarly to code types of non-clinical and prison populations.

The researchers then divided the sample into comparison groups based on victim age (adult or child), whether the crime was intrafamilial or extrafamilial, whether the subject was a first time offender or a recidivist—this was further

divided into whether the subject was a first time sex offender with prior convictions for nonsexual offenses or a recidivist with prior convictions for sexual offenses, and whether or not the subject was chemically dependent.

Erickson et al. (1987) found that the 4-9/9-4 code type was found significantly more often in persons who committed sex offenses against adult women versus those who committed sex offenses against a child. Alternatively, they found that those who had child victims presented with a 4-2/2-4 code type significantly more frequently than those with victims who were adult women; they did not find any significant differences between those who committed sex offenses against male or female children. The researchers examined a group of incest offenders comprised of biological and step-fathers. They found that the 4-3/3-4 code type was the most common for biological fathers, but noted this code type did not occur for step-fathers. On the other hand, the 4-7/7-4 code type was the most common for step-fathers, but not for biological fathers. In examining differences between the extra- and intrafamilial groups, the researchers found that 4-2/2-4 and 4-8/8-4 code types occurred more frequently in the extrafamilial group versus the intrafamilial group.

Next, Erickson et al. (1987) examined differences between first time sex offenders and recidivists. They found that first time sex offenders presented with a wider variety of code types than recidivists, but that recidivists had the highest frequency of high scores above 70T. Furthermore, they found that first time sex offenders with prior felony nonsexual offenses had a significantly higher frequency

of 4-8/8-4 and 4-9/9-4 code types than recidivists; they also found that recidivists had a significantly higher frequency of 4-2/2-4 code types when compared to first time sex offenders with previous nonsexual offenses. Finally, there were no significant differences between offenders who were chemically dependent and those who were not.

Hall et al. (1986) examined MMPI profiles of 406 adult men who committed sexual offenses against children. They examined the mean profile for the sample, and found that scales D, Pd, and Sc were both significantly high (at least 70T); all other clinical scales were between 60-69T. However, two-thirds of the sample had more than two high scores, and there were not any predominant two-point code types. They listed the 11 most frequent code types, but indicated there were no significant differences between their frequencies. These code types are 4-8/8-4, 7-8/8-7, 2-4/4-2, 4-9/9-4, 4-5/5-4, 2-8/8-2, 5-8/8-5, 4-6/6-4, 1-4/4-1, 4-7/7-4, and 8-9/9-8. Looking at individual scales, high scores on scale Pd were the most frequent, followed by high scores on scale Sc. The researchers also examined differences within the group between subjects who had male versus female victims, committed incestuous versus non-incestuous offenses, whether or not physical force was used, type of sex offense (rape versus molestation), and victim age. While the researchers found some statistically significant differences in these comparisons, they indicated the differences were not clinically significant.

Armentrout and Hauer (1978) examined group mean MMPI profiles of 51 adult male sex offenders who committed a sex offense against a female victim.

They divided the subjects into three groups: rapists of adult women, rapists of female children, and non-rapist sex offenders. The researchers found that all three groups had high scores on scales Pd and Sc, with the score of scale Pd being similar across all groups; the scores of scale Sc differed across groups. The mean profile of the group of rapists of adult women showed an 8-4 code type, with scale Sc higher than scale Pd. Conversely, the mean profile of the group of rapists of female children showed a 4-8 code type, with scale Sc somewhat lower than scale Pd. The mean profile of the group of non-rapist sex offenders showed a high score on scale Pd, with an even lower score on scale Sc than the group of rapists against female children. The researchers stated that these profile patterns reveal that all three groups of sex offenders were impulsive, egocentric, and have poor social intelligence. They indicated that the rapists of adult women were more interpersonally isolated, hostile, and resentful than rapists of female children. Finally, they stated both groups of rapists were more hostile and resentful than the non-rapist group.

Rader (1977) examined 129 MMPI profiles of three different types of sexual offenders: exposers, rapists, and assaulters. The researcher determined that the rapist group was the most disturbed as compared to the exposer and assaulter groups. The rapist group had significantly higher K-corrected raw scores on scales F, Hs, D, Hy, Pd, Pa, and Sc as compared to the exposer group. The rapist group also had significantly higher K-corrected raw scale scores on scales Pd, Pt, and Sc as compared to the assaulter group. The researcher indicated that there were no

significant differences between K-corrected raw scores of the exposer and assaulter groups. Rader's (1977) final finding was that the assaulter group had a significantly higher frequency of the 4-9 code type than the exposer and rapist groups.

Kirkland and Bauer (1982) examined MMPI profiles of 10 incestuous sex offenders (5 biological fathers and 5 step-fathers), and compared them to MMPI profiles of a matched control group of nonincestuous fathers. The researchers found that incestuous fathers had significantly higher scores than nonincestuous fathers on scales Pd, Pt, and Sc; scores on these scales for the incest group were at least 70T. They also found that on the MMPI profiles of the nonincest group, all scale scores were below 70T.

Valliant and Blasutti (1992) examined trait differences of sex offenders using the MMPI, Test of Nonverbal Intelligence- Form A (TONI), State-Trait Anxiety Inventory (STAI), and the Coopersmith Self-Esteem Inventory. Participants were 64 sex offenders who were divided into rapist, child molester, and incestuous subgroups. Results did not reveal any significant differences between offender subgroups on MMPI scale scores or intelligence. However, the researchers found that molesters of both male and female children had significantly higher trait anxiety than incestuous offenders. The researchers then examined the effect of cognitive behavior therapy on the offenders' belief systems. They found that the state anxiety of all groups significantly decreased over the course of treatment. They also found that the rapist and child molester groups had

significantly decreased trait anxiety over the treatment period. Valliant and Blasutti (1992) examined the treatment effect on participants' self-esteem, and found that the child molester group had significantly decreased self-esteem whereas the rapist, incestuous, and control groups significantly increased in self-esteem. Finally, results showed that the rapist and child molester groups displayed decreased negativism over the course of treatment, whereas the incest group displayed increased negativism.

McCreary (1975) compared MMPI profiles of 33 child sex offenders to examine if there were significant differences between those with no previous offenses and those with one or more previous offenses. He found that those with no previous offenses were significantly lower on scales Pd, Pd2, Hs, Hy, and Sc compared to those with one or more previous offenses. He also found that those with no previous offenses had average scaled scores ranging from 54-63T, with the highest scale being the depression scale. McCreary (1975) found that those with one or more previous offenses had high scores on scales Pd and Sc, with an overall range of scaled scores from 54-73T. He concluded that there appears to be a relationship between severity of personality disturbance and number of prior arrests in this sample. He stated that those with prior offenses were more impulsive and unconventional, had more conflicts with authority, and more psychosomatic complaints than those without prior offenses. He also noted those with prior offenses were more alienated, confused, and bizarre than those with no prior offenses.

Davis and Hoffman (1991) examined MMPI and California Personality Inventory (CPI) profiles of adult male sex offenders at the time of incarceration and of release from prison. While incarcerated, the participants attended a group treatment program. Overall, they found that profile differences were significant and consistent with expected treatment effects. Specifically, they found that post-incarceration scores on MMPI scales L, D, Hy, Pt, and Si were significantly lower than pre-incarceration scores.

Overall, there are some commonalities among these research findings. Research examining sex offender clusters based on MMPI profile patterns revealed that the most common high scores on clinical scales included in clusters were scales D, Pd, Pa, Pt, Sc, and Ma, with scale Pa being somewhat less frequent than the others. One commonly noted cluster had a single high score on scale Pd. Another cluster that was frequently found had an overall profile within normal limits, with the highest scores being on scales Pd and Ma. Research on sex offenders examining the frequency of MMPI two-point codetypes has identified that the most frequently occurring codetypes are 4-8/8-4, 4-9/9-4, 2-4/4-2, and 4-5/5-4. Despite the overall heterogeneity of the sex offender population, these commonalities indicate this population has significant personality profile differences from non-sexual offenders and the general population.

MMPI-2 Research on Sex Offenders

With the development of the MMPI-2, researchers began to focus on using this new instrument in their research. As was done with the MMPI, researchers

examined profile patterns of the MMPI-2 to identify sex offender clusters and common patterns of scale scores within this population. However, Mann, Stenning, and Borman (1992) noted that due to the revisions and restandardization of the MMPI in developing the MMPI-2, the suitability to generalize MMPI research to MMPI-2 cases had yet to be determined. Therefore, while some results of MMPI-2 studies may resemble those of MMPI studies, they should be critically analyzed prior to drawing conclusions about their similarities.

Falkenhain, Duckro, Hughes, Rossetti, and Gfeller (1999) conducted a cluster analysis of MMPI-2 profiles in an attempt to identify subgroups of child sex offenders. The researchers examined 97 MMPI-2 profiles completed by Roman Catholic priests and brothers who had committed a sexual offense against a child; the priests and brothers were receiving treatment at a residential facility specifically for Roman Catholic religious professionals. Results revealed four clusters: the "sexually and emotionally underdeveloped" group, the "significantly psychiatrically disturbed" group, the "undefended characterological" group, and the "defended characterological" group. Falkenhain et al. (1999) described the "sexually and emotionally underdeveloped" subgroup as the least pathological. This cluster was characterized by social discomfort, passive-dependence, and emotional overcontrol. Conversely, the researchers described the "significantly psychiatrically disturbed" subgroup as the most pathological. Persons in this cluster had the highest number of both inpatient and outpatient treatments and were characterized as psychologically distressed and emotionally instable. The

"undefended characterological" group was described as being socially withdrawn, rigid, and interpersonally submissive with a tendency to act out. Finally, the "defended characterological" group was characterized by manipulation of others, shallow relationships, and poor impulse control. Additionally, this cluster presented with a "faking good" profile pattern, indicating group members tended to present themselves in an overly positive light.

Ridenour, Miller, Joy, and Dean (1997) examined the MMPI-2's ability to distinguish between men who have committed sexual offenses against children and a non-offending control group. Their sex offender sample consisted of 91 adult men in a community-based treatment program who had been convicted of a sexual offense against a child age 16 or younger. Eighty-nine percent of men in this group had been incarcerated either prior to or while participating in the treatment program, and the remaining participants were on probation; those on probation were required to complete treatment with incarceration being the consequence for failure to comply. The control sample consisted of 90 men whose profiles were randomly selected from the MMPI-2 standardization sample. Ridenour et al. (1997) conducted a cluster analysis of the sex offender sample and found four clusters which they concluded resembled clusters found in previous MMPI studies.

The first cluster they found was characterized by a profile pattern that was within normal limits; it did not have any scales with high scores of at least 65T. The researchers noted this cluster was comparable to cluster one found on the MMPI by Shealy et al. (1991), as that cluster also was within normal limits.

Ridenour et al. (1997) called their second cluster FPathHi, which was characterized by higher scores on scale F and high points on at least three clinical scales. The researchers indicated this cluster also resembled those found by Shealy et al. (1991). This cluster was comparable to Shealy et al.'s (1991) cluster four, which was characterized by high points on seven of the clinical scales and exaggerated psychopathology, and subgroup three, which was characterized by high points on three clinical scales and subclinical scores on three scales. The third cluster found by Ridenour et al. (1997) was called the FPathLo cluster. The profile pattern of this group had lower scores on scale F and the clinical scales. The researchers indicated this can be compared to Shealy et al.'s (1991) cluster two, which consisted of one high point and four subclinical scale scores. The last cluster found by Ridenour et al. (1997) was called the SubClin0 cluster. This cluster was characterized by a subclinical score on scale Si, which the researchers indicated was similar to a subgroup found by Duthie and McIvor (1990) with the MMPI. This similar cluster on the MMPI was called the Normal-Avoidant Type, which was characterized by subclinical scores on scales Si, Masculinity-Femininity (Mf), and Sc. Overall, Ridenour et al. (1997) concluded that the MMPI-2 provides a more useful means to discriminate between a group of people who have committed sexual offenses against children and a control group when compared to the MMPI. This is demonstrated via higher hit rates and lower false positive rates when using the MMPI-2 as compared to the MMPI. Lastly, the researchers found that while all

clusters made significant treatment progress, the amount of progress was not significantly different among clusters.

The results of MMPI-2 cluster analytic studies are summarized in Table 3.

Table 3

MMPI-2 cluster analysis results

Author(s)/Sample	**Cluster Analysis Results**
Falkenhain et al. (1999); 97 Roman Catholic priests and brothers who had committed a sexual offense against a child and were receiving treatment at a residential facility specifically for Roman Catholic religious professionals	**Cluster 1:** scores within normal limits **Cluster 2:** high scores on Hs, D, Hy, Pd, Pa, Pt, and Sc, subclinical scores on F and Si **Cluster 3:** several subclinical scores, Pd highest **Cluster 4:** within normal limits, Hy highest, Si < 40T
Ridenour et al. (1997); 91 adult men in a community-based treatment program who had been convicted of a sexual offense against a child age 16 or younger	**Cluster 1:** scores within normal limits **Cluster 2:** higher scores on F and high scores on at least 3 clinical scales **Cluster 3:** lower scores on F and the clinical scales **Cluster 4:** subclinical score on Si

Other types of studies using the MMPI-2 with this population have examined subgroups based on type of sex offense, undertaken contrasts to comparison groups, or evaluated post-treatment status. Tomak, Weschler, Ghahramanlou-Holloway, Virden, and Nademin (2009) conducted a study to determine if internet sex offenders are different from other types of sex offenders, such as child molesters and rapists, based on MMPI-2 profile patterns. Their sample consisted of 48 adult men convicted of internet sex offenses who were not

incarcerated or accused of a contact offense; these men received psychosexual risk assessments at a private treatment facility. The sample also consisted of 104 general sex offenders who were incarcerated. Overall, the researchers found that the internet sex offender group obtained significantly lower scores on scales Lie (L), F, Pd, and Sc, indicating some differences between groups based on MMPI-2 profile patterns. For the internet sex offender group alone, there were not any commonly occurring code types, and all scores were within normal limits. The researchers concluded that the internet sex offender group was heterogeneous and had substantial within-group differences. Conversely, the general sex offender group was found to have a profile pattern characterized by a high point of at least 65T on scale Pd, and a subclinical score (T between 60-64) on scale Sc. This is consistent with common high points found in sex offender studies with the MMPI and MMPI-2.

Shechory, Weiss, and Weinstain (2013) examined MMPI-2 profile differences between 230 adults under the Israeli Adult Probation Service who had been convicted of either domestic violence, sexual offenses, traffic violations, or nonspecific violent offenses. The researchers described the sex offender group as unique, and explained that people who committed sex offenses did not fit into a "classic offenders" category. They further described the sex offender group as having low aggression levels and high anxiety levels based on the MMPI-2. Finally, the researchers noted the sex offender group had lower scores on scale Pd and Antisocial Practices (ASP) as compared to the other offender groups.

Coxe and Holmes (2009) examined differences between high- and low-risk sex offenders based on The STATIC-99, Abel Assessment of Sexual Interest, Raven's Progressive Matrices, and the MMPI-2. The sample consisted of 285 sex offenders who were on probation. Overall, the researchers found that offender age, number of prior felonies, cognitive distortion score, and score on the MMPI-2's Infrequency scale significantly predicted risk. First, they found that the average offender age of the low-risk group was significantly lower than that of the high-risk group. Next, they found that those in the low-risk group had a significantly higher number of prior felonies than those in the high-risk group. Third, they found that the high-risk group obtained significantly higher scores regarding cognitive distortion and on the Infrequency scale of the MMPI-2 than those in the low-risk group. Regarding MMPI-2 profile patterns, Coxe and Holmes (2009) found that the low-risk group did not have any high points (at least 65T), but that the high-risk group had high points on scales Pd, Pa, and Sc. Finally, the researchers did not find any significant differences between groups on their measured or self-reported sexual interests in children, or on their tendencies to admit to/deny their offenses.

Mann et al. (1992) examined MMPI-2 profiles of 109 adult men who were incarcerated and participated in treatment programs after committing sexual offenses against children. Specifically, 60 sex offenders were incarcerated in state prison, 24 in federal prison, and 25 in a military confinement facility. When all participants were placed in one combined group, the researchers found that the mean profile pattern was characterized by having zero high points of at least 65T.

They also noted scale Pd had the highest score (63T) and scale Mf had the lowest score (48T). In examining profile pattern frequencies rather than the mean, the researchers found the most frequent profile elevations were a single high point on scale Pd or a single high point on scale Si. However, only 16.51 percent of the sample produced these profile patterns. Mann et al. (1992) also found each of the following two-point code types had frequencies of at least four participants: 2-4/4-2, 2-0/0-2, 3-4/4-3, and 4-0/0-4. Still, these profile patterns combined were produced by 14.68 percent of the sample. Finally, the researchers examined MMPI-2 profile differences between participants based on where they were incarcerated. They found that scale Hs was the most frequent high point among those incarcerated in state prison, and that scale L was the highest mean score (60T) for this subgroup. The researchers also found that those incarcerated in state prison and the military confinement facility obtained the lowest scores on scale Mf, whereas those in federal prison scored significantly higher than the other subgroups on this scale.

Rossetti, Cimbolic, and Wright (1996) compared MMPI-2 scores of 100 priests convicted of sexual offenses against same-sex adolescents to 100 priests who were evaluated for non-sexual psychiatric disorders. The goal of their study was to conduct an item-level analysis in an attempt to construct and validate a new MMPI-2 scale for use with the priest population. The researchers identified 23 items that were useful to create an item pool for this scale. They then cross-validated these items with a different sample of priests convicted of sexual offenses

against same-sex adolescents and a priest psychiatric control group. This cross-validation revealed that the item pool was able to discriminate the sex offender group from the control group. The researchers then examined the MMPI-2's ability to discriminate between 100 priests convicted of sexual offenses against same-sex adolescents from 31 priests convicted of sexual offenses against children, which, however, was not successful.

Overall, sex offender research studies utilizing the MMPI-2 have had some similar findings to those utilizing the MMPI. Despite sex offenders being a largely heterogeneous group, research with the MMPI-2 has shown that subgroups based on personality profile patterns can be found within this population. Similar to MMPI results, researchers found MMPI-2 based clusters that were within normal limits, as well as clusters that had patterns involving scales D, Pd, Pa, Pt, and Sc. In addition, researchers have been able to draw parallels between clusters found with the MMPI and those found with the MMPI-2 (e.g. Duthie & McIvor, 1990; Ridenour et al., 1997; Shealy et al., 1991).

MMPI-2-RF Research on Sex Offenders

To date, there has been one published study that utilized the MMPI-2-RF with a sample of adult male sex offenders. Tarescavage, Cappo, and Ben-Porath (2016) examined the relationship between scores on the MMPI-2-RF and scores on the STATIC-99 and Level of Service Inventory-Revised (LSI-R). The STATIC-99 is a static risk assessment instrument and the LSI-R is a dynamic risk assessment instrument. The researchers proposed that typical structured risk assessments that

rely on profession judgment, such as the Sexual Violence Risk-20 (SVR-20), which involve an interview with the evaluee and obtaining third party information, have limitations that reduce their predictive value when compared to actuarial risk assessments. These limitations are based on the limited objectivity during this type of risk assessment, which the researchers suggest can be addressed by integrating objective psychological testing, such as the MMPI-2-RF, into the risk assessment.

In evaluating the MMPI-2-RF's effectiveness in assessing risk, Tarescavage et al. (2016) reviewed a related meta-analysis of sexual offense recidivism risk factors conducted by Mann, Hanson, and Thornton (2010). Mann et al. (2010) conducted a meta-analysis of meta-analyses of sexual offense recidivism risk factors in order to identify those that are empirically supported; the researchers concluded that there are 11 supported broad risk factors for sexual offense recidivism. Tarescavage et al. (2016) noted that four of these broad risk factors converge with constructs that are measured with the MMPI-2-RF. The first risk factor is lack of emotionally intimate relationships with adults (Mann et al., 2010). Tarescavage et al. (2016) proposed that the Family Problems, Social Avoidance, and Disaffiliativeness Scales of the MMPI-2-RF provide objective data that converges with this construct. The second risk factor is lifestyle impulsivity. The researchers suggest the Behavioral/Externalizing Dysfunction, Substance Abuse, and Disconstraint-Revised Scales converge with this construct. The third risk factor is resistance to rules and supervision, which the researchers indicate can be measured via the Antisocial Behavior and Juvenile Conduct Problems Scales. The

fourth risk factor is grievance/hostility; the researchers suggest the Cynicism and Persecutory Ideation Scales converge with this construct.

Tarescavage et al. (2016) conducted their study to evaluate the psychometric effectiveness of the MMPI-2-RF in a sample of sex offenders to work towards establishing its utility in future risk assessments. Specifically, the researchers aimed to provide descriptive statistics for the sample that can be used as a point of comparison for future practitioners using the MMPI-2-RF for risk assessment purposes. They also evaluated the reliability of the MMPI-2-RF's scale scores for the sample. Lastly, the researchers evaluated the MMPI-2-RF's convergent validity with the STATIC-99 and LSI-R. Tarescavage et al. (2016) hypothesized that the Behavioral/Externalizing Dysfunction, Antisocial Behavior, Juvenile Conduct Problems, Aggression, Aggressiveness, and Disconstraint-Revised Scales would be associated with the STATIC-99 due to their general criminality factor. The researchers also hypothesized that the total score of the LSI-R would be associated with the Substance Abuse Scale, as well as the scales listed above, due to their criminal history, antisocial lifestyle, and alcohol/mental health factors. The final hypothesis was that the MMPI-2-RF scales thought to converge with Mann et al.'s (2010) supported broad risk factors would also be associated with the LSI-R total score.

The sample in Tarescavage et al.'s (2016) study consisted of 304 male child sex offenders who produced valid MMPI-2-RF profiles according to the test authors' standard guidelines for validity. Participants were between the ages of 20

and 77 years old (*M* = 41.6, *SD* = 12.9), and the majority were Caucasian (87.0%). Participants' STATIC-99 scores were assessed, on average, to be in the Low-Moderate Risk category (*M* = 1.9, *SD* = 2.1). On the LSI-R they produced an average score of 19.7 (*SD* = 6.5), again placing it within the Low-Moderate Risk category.

Tarescavage et al. (2016) used the criterion of 5 T-score difference from the normative sample (50T) to evaluate meaningful differences between normative and sex offender samples; this is the standard guideline for determining clinically meaningful differences. Results showed the sex offender sample produced meaningfully higher scores on the Infrequent Responses-Revised (56T) and Uncommon Virtues-Revised (60T) scales. They also produced meaningfully higher scores on the Behavioral/Externalizing Dysfunction scale (56T). The sex offender sample had meaningfully higher scores on several Restructured Clinical scales, including the Demoralization (55T), Antisocial Behavior (60T), and Ideas of Persecution (58T) scales. They also scored meaningfully higher on the Neurological Complaints (57T), Juvenile Conduct Problems (60T), Social Avoidance (55T), and Mechanical-Physical Interests (59T) scales. Their sample produced meaningfully lower scores on the Multiple Specific Fears (45T) and Aesthetic-Literary Interests (42T) scales than the normative sample. Lastly, the sex offender sample had meaningfully higher scores on the Disconstraint-Revised scale (57T).

Tarescavage et al. (2016) then examined mean inter-item correlations, using a guideline of .10-.19 as adequate, and greater than or equal to .20 as optimal. They found that the correlations among the Higher-Order scales ranged from .06 for THD to .18 for EID, and that among the RC scales correlations ranged from .07 for RC6 to .26 for RC3. Next, they found that mean inter-item correlations among the Specific Problems scales ranged from .07 for BRF to .40 for SFD, and that correlations among the PSY-5 scales ranged from .06 for PSYC-r to .16 for NEGE-r. Overall, the researchers found that scales RC3 and JCP had meaningfully higher mean inter-item correlations compared to the normative sample; GIC, MSF, SUB, SHY, AES, MEC, and DISC-r had meaningfully lower mean inter-item correlations compared to the normative sample; and that all other scales had similar correlations to those of the normative sample.

Tarescavage et al. (2016) evaluated the internal consistency reliability of MMPI-2-RF scale scores using a guideline of .70-.89 as adequate and greater than or equal to .90 as excellent. The researchers found that internal consistency alpha coefficients among the Higher-Order scales ranged from .64 for THD to .90 for EID, coefficients among the RC scales ranged from .60 for RC6 to .88 for RDd, coefficients among the Specific Problems scales ranged from .38 for BRF to .76 for SAV, and coefficients among the PSY-5 scales ranged from .61 for PSYC-r to .70 for NEGE-r. In comparison to the normative sample, the sex offender sample had meaningfully higher internal consistency coefficients on SUI, HLP, AXY, and JCP;

GIC and SUB had meaningfully lower coefficients, and all other scales had similar coefficients to those of the normative sample.

As an additional examination of MMPI-2-RF score reliability, Tarescavage et al. (2016) examined Standard Error of Measurement (SEM) values. They found the SEM values to reflect acceptable reliability. For the Higher-Order scales they ranged from 3.6T for EID to 6.1T for THD, values among the RC scales ranged from 3.5T for RCd to 7.5T for RC6, the Specific Problems scales had SEM values ranging from 4.3T for SHY to 7.9T for SUI, and values on the PSY-5 scales ranged from 5.1T for AGG-r and INTR-r to 6.1 for PSYC-r. However, they found that all SEM values for the sex offender sample were comparable to those of the normative sample.

Finally, Tarescavage et al. (2016) examined convergent validity of the MMPI-2-RF with the STATIC-99 and LSI-R, using a guideline effect size of at least .20 to detect meaningful correlations. The researchers found that the STATIC-99 Total Scores had meaningful correlations, ranging from .16-.29, with scales of the Behavioral/Externalizing domain of the MMPI-2-RF. They also found that the LSI-R Total Scores were meaningfully associated, ranging from .13-.46, with MMPI-2-RF scales of the Emotional/Internalizing, Behavioral/Externalizing, Thought Dysfunction, Interpersonal Functioning, and Somatic/Cognitive Dysfunction domains.

Taken together, the researchers concluded that the MMPI-2-RF scales they hypothesized would be related to empirically supported risk factors for sexual

offense recidivism were correlated in the direction they hypothesized (Mann et al., 2010; Tarescavage et al., 2016). Given the obtained descriptive statistics, they noted that sex offenders tend to engage more in purposeful impression management (L-r) than defensive self-deception (K-r). They also noted that the overall reliability estimates were mostly adequate, indicating the proposed MMPI-2-RF scales would be reliable measures of the empirically supported risk factors. Finally, the researchers found the MMPI-2-RF to be psychometrically supported for its use with the sex offender population.

There are two relevant dissertations involving use of the MMPI-2-RF with sex offenders: one focused on personality characteristics of internet sex offenders (Lustig, 2011) and the other evaluated personality characteristics of child sex offenders (Privett, 2012). These studies are limited by their small sample sizes, (n = 30) and (n = 48), respectively.

In her dissertation, Lustig (2011) examined correlations between internet sex offenders' responses on particular MMPI-2-RF scales and Millon Clinical Multiaxial Inventory, Third Edition scales (MCMI-III). The researcher hypothesized there would be positive and significant correlations between the MMPI-2-RF Low Positive Emotions scale and the MCMI-III Depressive scale; the MMPI-2-RF Antisocial Behavior scale and the MCMI-III Antisocial scale; the MMPI-2-RF Aberrant Experiences scale and the MCMI-III Thought Disorder scale; and the MMPI-2-RF Anxiety scale and the MCMI-III Anxiety scale. The researcher also hypothesized that personality profiles of Internet sex offenders

would show clinically significant high scores on all of the MMPI-2-RF (T-score of 65 or greater) and MCMI-III (Base Rate (BR) scores of 75 or greater; $M = 60$, $SD = 25$) scales mentioned above. Participants in Lustig's (2011) study were 30 adult men who had been convicted of either receipt, possession, or distribution of child pornography via the Internet, and were under federal probation and attending outpatient sex offender treatment. Regarding the first hypothesis, Lustig (2011) found that correlations between all pairs of MMPI-2-RF and MCMI-III scales were statistically significant in the range of $r = .47$ to .53. The exception to this was the correlation between the MMPI-2-RF Low Positive Emotions and MCMI-III Depressive scales as it was not statistically significant. Nonetheless, scale scores on both tests did not reach the expected high levels and the second hypothesis was not supported.

Lustig (2011) also conducted an exploratory analysis to search for patterns indicative of personality characteristics on the MMPI-2-RF and MCMI-III beyond the hypothesized scales. Results of this exploratory analysis revealed that there were very few high scores found in this study. As a result, the researcher suggested that personality profiles of internet sex offenders are likely to be more similar to profiles of a non-offending population than profiles of contact sex offenders (Lustig, 2011). Thus, Internet sex offenders likely constitute a unique subgroup of the general sex offender population. One alternative explanation proposed by Lustig (2011) is that, due to average range scores, the MMPI-2-RF may not be a

helpful measure with Internet sex offenders as the obtained profiles tend to be suppressed.

Privett's (2012) dissertation examined personality characteristics of child sex offenders with the MMPI-2-RF. The researcher hypothesized there would be high scores (T-scores of 65 or greater) on scales measuring antisocial thoughts and behaviors, acting out, and externalizing behaviors, specifically, the Behavioral/Externalizing Dysfunction scale, Antisocial Behavior scale, Hypomania scale, Aggression- Revised scale, and at least one scale from the Externalizing cluster. The researcher also hypothesized there would be high scores on scales measuring bizarre, unusual, and disorganized thinking and behavior, that is, on the Thought Dysfunction scale, Aberrant Experiences scale, and Psychoticism scale. A third hypothesis was that there would be high scores on scales measuring depression, hopelessness, and internalizing characteristics, such as the Emotional/Internalizing Dysfunction scale, Low Positive Emotions scale, Negative Emotionality scale, and at least one scale from the Internalizing cluster. The fourth hypothesis was that there would be high scores on scales measuring interpersonal problems, that is, the Introversion- Revised scale and the Interpersonal cluster.

Participants in Privett's (2012) study were 48 men who were convicted of or admitted to criminal sexual offending behavior and had produced valid MMPI-2 and MMPI-2-RF profiles. Privett (2012) found that the sample of child sex offenders' MMPI-2-RF profiles tended to be suppressed, as they did not produce high mean T scores on any scales. This suggests that, in general, child sex

offenders are not more psychologically disturbed than the general population. However, the researcher found that some moderately high T scores (60-64) were produced on the Suicidal/Death Ideation scale, Infrequent Somatic Responses validity scale, Antisocial Behavior scale, and the Juvenile Conduct Problems scale.

Overall, Privett (2012) found that the mean MMPI-2-RF profile of the utilized sex offender sample was within normal limits, suggesting that in general, child sex offenders are not more psychologically disturbed than the general population. He also found that child sex offenders tend to engage in internalizing behaviors, present with less externalizing behaviors than expected, and have trouble in school and/or with the law as juveniles. The researcher noted his findings that the sample did not display characteristics related to bizarre and disorganized thinking were inconsistent with previous research with the MMPI and MMPI-2; this may be accounted for partly by characteristically lower scores on the MMPI-2-RF relative to the earlier forms of this test. Finally, he reported that expected personality characteristics related to interpersonal and familial problems were not evident, but attributed this to these characteristics being better reflected in the externalization domain.

Rationale and Hypotheses

Given society's concern regarding sex offenses, it is important to continue research in this area to better understand the personality characteristics of sex offenders, their influence on offenders' level of reoffending risk, and how they can better inform treatment. Profile patterns of sex offenders have been studied extensively with the MMPI and MMPI-2, as well as other objective personality assessment measures. Researchers have found that the sex offender population is largely heterogeneous and there are subgroups that can be identified based on personality profile patterns. With the release of the MMPI-2-RF in 2008 and increased utilization of this instrument in recent years, it is also being applied to the assessment of sex offenders. Currently, no published studies have used the MMPI-2-RF to identify profile patterns of sex offenders. Tarescavage et al. (2016) researched risk factors that can be assessed with the MMPI-2-RF but not subgroups of sex offenders based on personality and psychopathology characteristics. Given the new scales on the MMPI-2-RF that place an emphasis on internalizing versus externalizing orientations, as well as specific problem areas not found in earlier versions of the MMPI, identifying subgroups of sex offenders with this instrument would be a new contribution to the literature on personality assessment of sex offenders.

The purpose of the current study was to identify sex offender subtypes, or separate clusters, of personality and psychopathology characteristics based on the MMPI-2-RF. The study was exploratory to a degree, given that it was the first

cluster analytic study using the MMPI-2-RF in a sample of sex offenders. On the other hand, although the MMPI-2-RF is different from previous versions of the test, its continuity with the MMPI family of instruments allow for hypotheses to be informed by earlier findings of sex offender profile patterns.

Based on prior research findings with the MMPI and MMPI-2, the hypothesis of the study was that several distinct clusters would be identified. It was expected that the following cluster types would emerge:

1. A within-normal-limits cluster indicative of minimal to no psychopathology. This profile is consistent with previous cluster analytic studies using the MMPI (e.g., Hall et al., 1991; Heersink & Strassberg, 1995; Kalichman et al., 1992; Shealy et al., 1991) and MMPI-2 (e.g., Falkenhain et al., 1999; Ridenour et al., 1997).
2. An externalizing behavioral cluster broadly reflective of disconstraint. MMPI-2-RF scales BXD, RC4, JCP, RC9, AGG, ACT, AGGR-r, and DISC-r were expected to be reflected in this profile. These eight scales are derived from the Behavioral Dysfunction set of the test, excluding SUB. Previous MMPI studies have identified clusters that have a core externalizing component to them (e.g., Anderson et al., 1979; Duthie & McIvor, 1990; Kalichman et al., 1992).
3. An internalizing cluster reflective of a driving sense of ineffectiveness. Scales expected to be reflected in this domain were derived from the

Emotional Dysfunction set and included eleven scales: EID, RCd, HLP, SFD, NFC, RC2, RC7, STW, AXY, NEGE-r, and INTR-r. Scales SUI, ANP, BRF, and MSF were excluded as they have not been found specifically for sex offenders in previous research. Previous cluster analytic studies with the MMPI and MMPI-2 have revealed clusters comprised of scales that reflect internalization (e.g., Anderson et al., 1979; Duthie & McIvor, 1990; Kalichman et al., 1992; Ridenour et al., 1997).

4. A cluster reflective of severe psychological disturbance with multiple high scores that extend across different domains of personality and functioning. A high score is defined as one standard deviation above the normative mean or higher, that is, a T-score of 60 or higher. This profile has been consistently found across previous cluster analytic studies with the MMPI and MMPI-2 (e.g., Falkenhain et al., 1999; Hall et al., 1991; Heersink & Strassberg, 1995; Shealy et al., 1991).
5. It was also anticipated that a new cluster could emerge empirically that had not been identified in previous studies with the MMPI, MMPI-2, and MMPI-2-RF. This cluster could potentially be a hybrid of different characteristics.

Methods

Participants

The initial pool of participants consisted of 293 adult men who had allegedly committed a sexual offense and completed a sex offender evaluation between 2006 and 2018 at a forensic/psychological outpatient facility in Central Florida. Inclusion criteria for the study consisted of the participant (a) being at least 18 years of age, (b) having a documented sexual offense, and (c) producing a valid MMPI-2-RF profile based on standard test criteria. These criteria included obtaining a CNS raw score less than 15, a VRIN-r T score less than 80, and a TRIN-r T score less than 80, reflecting an acceptable level of item completion, response consistency, and absence of response bias. Based on the inclusion criteria, 12 participants produced invalid profiles, resulting in a final sample of 281 adult men.

Participants were ages 18 to 75 (M = 36.3, SD = 13.1), and were 64.8% White (n = 182), 14.2% Hispanic (n = 40), 11.4% Black (n = 32), 3.6% Asian (n = 10), 0.3% Native American (n = 1), 1.1% Other ethnicity (n = 3), and 4.6% unidentified ethnicity (n = 13). The highest level of education that was most frequently obtained was a High School Diploma (n = 69; 24.6%), followed by having Some College education (n = 66; 23.5%), No Degree (n = 41; 14.6%), a Four-Year Degree (n = 37; 13.2%), a General Equivalency Diploma (GED; n = 29; 10.3%), a Two-Year Degree (n = 18; 6.4%), and a Graduate Degree (n = 13; 4.6%);

8 participants did not identify their level of education (2.8%). In terms of marital status, 42.0% participants were Single (*n* = 118), 27.0% were Married (*n* = 76), 17.4% were Divorced (*n* = 49), 7.8% were Separated (*n* = 22), and 5.7% did not identify their marital status (*n* = 16). The mean number of biological and/or adopted children for the sample was 1.6 (*SD* = 1.7; median = 1.0; mode = 0.0; range: 0-11). Table 4 below provides further information related to participants' offenses, personal histories, and psychological status. Due to participant data being collected from archival records, information for some variables was not available for all participants.

Table 4

Participants' offense-related and personal history data

Variable	N	Percent
Referral Source		
Attorney	182	64.8%
Court-Ordered	38	13.5%
Case Manager	15	5.3%
Other Source	42	14.9%
Unknown	4	1.4%
Nature of Charge		
Contact	94	33.5%
Non-Contact	56	19.9%
Intended Contact[1]	64	22.8%
Allegation Pending Charge	61	21.7%
Contact and Non-Contact	4	1.4%
Non-Contact and Intended Contact	2	0.7%
Victim Age		
Less than 5 years	16	5.7%
5- to 9-years	34	12.1%
10- to 12-years	26	9.3%
13- to 17-years	113	40.2%
18 years or older	9	3.2%

(continues)

Table 4 (cont.)

Variable	N	Percent
Multiple Victims Across Age Ranges	11	3.9%
Unknown	72	25.6%
Victim Gender		
Male	20	7.1%
Female	192	68.3%
Male and Female	4	1.4%
Unknown	65	23.1%
Relationship to the Victim		
Family	71	25.3%
Stepfamily	30	10.7%
Family and Stepfamily	3	1.1%
Acquaintance	39	13.9%
Stranger	67	23.8%
Unknown	71	25.3%
Current Living Situation		
Alone	49	17.4%
With Significant Other	53	18.9%
With Family	72	25.6%
With Roommate	11	3.9%
Incarcerated	40	14.2%
Unknown	56	19.9%
Current Employment Status		
Employed	143	50.9%
Unemployed[2]	111	39.5%
Disabled	7	2.5%
Retired	5	1.8%
Unknown	15	5.3%
Family Mental Health History		
Yes	62	22.1%
No	154	54.8%
Unknown	65	23.1%
Family Substance Abuse History		
Yes	82	29.2%
No	131	46.6%
Unknown	68	24.2%
History of Emotional Abuse		
Yes	30	10.7%
No	202	71.9%
Unknown	49	17.4%

(continues)

Table 4 (cont.)

Variable	N	Percent
History of Physical Abuse		
Yes	30	10.7%
No	202	71.9%
Unknown	49	17.4%
History of Sexual Abuse		
Yes	31	11.0%
No	211	75.1%
Unknown	39	13.9%
History of Neglect		
Yes	4	1.4%
No	227	80.8%
Unknown	50	17.8%
Nature of Previous Legal History		
None	150	53.4%
Nonviolent	60	21.4%
Violent	19	6.8%
Sex Offense	6	2.1%
Combination[3]	34	12.1%
Unknown	12	4.3%
History of Substance Abuse		
Yes	111	39.5%
No	159	56.6%
Unknown	11	3.9%
Current Substance Abuse		
Yes	33	11.7%
No	242	86.1%
Unknown	6	2.1%
History of Mental Health Treatment		
Yes	189	67.3%
Sex Offender Treatment	31	11.0%
Anger Management	16	5.7%
Substance Abuse Treatment	31	11.0%
No	86	30.6%
Unknown	6	2.1%
Primary Axis I Diagnosis		
Paraphilic Disorder	68	24.2%
Adjustment Disorder	57	20.3%
Mood Disorder	40	14.2%
Other Disorder	47	16.7%
No Diagnosis	62	22.1%

(continues)

Table 4 (cont.)

Variable	N	Percent
Unknown	7	2.5%
Primary Axis II Diagnosis		
Personality Disorder	51	18.1%
Personality Features	58	20.6%
Other Disorder	1	0.4%
No Diagnosis	164	58.4%
Unknown	7	2.5%

Note.
[1]Intended Contact refers to those who were charged with sex offenses such as travelling to meet a minor with the intent to commit a contact sex offense or attempting to commit a contact sex offense.
[2]Of those who were unemployed, 22.1% (n = 62) lost their job or were unemployed due to their arrest and/or incarceration.
[3]Those classified as Combination had previous legal histories of nonviolent, violent, and/or sex offenses.

To summarize the major characteristics of the sample from the description and table above, the typical sex offender in this sample was a single, White man in young-to-middle adulthood with a high school education. Approximately half the sample was employed at the time of evaluation and approximately two-thirds of the sample was referred by an attorney. Roughly two-thirds of the sample had a history of mental health treatment, such as outpatient psychotherapy, inpatient treatment, and specialized therapy groups addressing sex offenses, anger management, and substance abuse. Teenage girls were the most frequent targets of the sex offenses. Notably, the majority of sex offenders in the sample denied a personal history of sexual abuse, as well as emotional or physical abuse, or neglect. Roughly half of the sample had no prior legal history.

Instruments

MMPI-2-RF

The Minnesota Multiphasic Personality Inventory- Second Edition-Restructured Form (MMPI-2-RF) was the sole instrument utilized in this study. Test-retest reliability for the overall normative sample was reported in the MMPI-2-RF Technical Manual (Tellegen & Ben-Porath, 2008/2011). The validity scale test-retest reliability correlations range from .40-.84 with a Standard Error of Measurement (SEM) ranging from 4-8. The Higher-Order scale correlations range from .71-.91 (SEM: 3-5), the RC scale correlations range from .64-.89 (SEM: 3-6). The Somatic/Cognitive scales had test-retest correlations ranging from .54-.82 (SEM: 4-7), the Internalizing scale correlations range from .65-.84 (SEM: 4-6), and the Externalizing scale correlations range from .77-.87 (SEM: 4-5). Finally, test-retest correlations range from .60-.88 (SEM: 4-6) on the Interpersonal scales, .86-.92 (SEM: 3-4) on the Interest scales, and .76-.93 (SEM: 3-5) on the PSY-5 scales. Internal consistency coefficients for the men in the normative sample were also reported in the MMPI-2-RF Technical Manual (Tellegen & Ben-Porath, 2008/2011). For men, reported internal consistency coefficients for the validity scales range from .37-.69 (SEM: 6-9). Internal consistency coefficients for the Higher-Order scales range from .69-.86 (SEM: 4-6) and range from .63-.87 (SEM: 3-6) for the RC scales. For the Somatic/Cognitive scales, internal consistency coefficients range from .52-.64 (SEM: 5-7) and for the Internalizing and Externalizing scales, coefficients range from .39-.72 (SEM: 5-8) and .60-.66 (SEM:

6-7), respectively. Finally, internal consistency coefficients for men ranged from .51-.78 (SEM: 5-8) on the Interpersonal scales, .61-.62 (SEM: 5-6) on the Interest scales, and .69-.77 (SEM: 5-6) on the PSY-5 scales. Overall, test score reliability for the MMPI-2-RF scales is deemed to be adequate or better.

Test score validity for the overall normative sample was also reported in the MMPI-2-RF Technical Manual (Tellegen & Ben-Porath, 2008/2011). The performance of MMPI-2-RF VRIN-r was comparable to that of VRIN on the MMPI-2, and TRIN-r performed better than TRIN. VRIN-r and TRIN-r were adequately sensitive to inconsistent responding. The test developers also noted that scales F-r, Fp-r, and FBS-r performed similar to F, Fp, and FBS on the MMPI-2, and that L-r and K-r were successfully able to identify under-reporting of psychopathology. Convergent validity was measured by correlating test scores with therapist and intake staff ratings, admission records, clinical diagnoses, biographical information, and self-report measures. The substantive scales adequately correlated in expected ways in clinical, medical, forensic, and non-clinical samples. Additionally, the substantive scales of the MMPI-2-RF were found to correlate in expected ways with comparable scales on the MMPI-2. Overall, the test manual provided evidence of acceptable test score validity, and this has been further verified in other studies (i.e. Tarescavage et al., 2016).

Procedure

The current study commenced after receiving approval from both the Institutional Review Board (IRB) of Florida Institute of Technology and the

Doctoral Research Project (DRP) committee. Data was obtained from an outpatient practice site in Orlando, Florida where evaluations of sex offenders are conducted. The chair of the current dissertation study has a research association with this facility from which the data was obtained. MMPI-2 and MMPI-2-RF scores were extracted from evaluations conducted between 2006-2018, inclusive. Test scores were available from the computerized Q Local test scoring system, the outputs of which are stored at that facility. These scores were then transferred to an SPSS database. For the 72 cases in which the MMPI-2 was administered, the test data was re-scored through the University of Minnesota Press Test Division, which offered to provide research support of this nature, to produce the corresponding MMPI-2-RF profiles. Demographic data was collected from written records, and included participant age, ethnicity, level of education, marital status, employment status, nature of the offense, and age and sex of victim(s), family mental health history, abuse history, and the participant's mental health history. Participant confidentiality was maintained throughout the data extraction process and the entirety of the study. Personal Health Information (PHI) was not used for research, and participant names were not transferred into the database.

Data Analysis

Preliminary analyses involved generating descriptive statistics to describe the sample. Following this, the primary analysis of the study consisted of an agglomerative hierarchical cluster analysis. All scales of the MMPI-2-RF were included in the analysis. Cluster formation was determined based on Ward's

(1963) method, which is a measure of squared Euclidean distance. This method initially labels each participant's test profile as an individual cluster and then agglomerates each test profile until homogenous clusters are formed (Everitt, 2011; Spaans et al., 2009). The best cluster solution, that is the most appropriate number of clusters, is determined based on increases in within-cluster variance and within-cluster error sum of squares (ESS). When similar clusters are joined, the within-cluster variance and ESS increases in small increments, whereas when dissimilar clusters are joined the within-cluster variance and ESS increase in larger amounts. Therefore, when there is a large jump, or discrepancy, in within-cluster variance and ESS between cluster solutions, the solution prior to the jump is the most appropriate solution. To verify the best cluster solution, a K-Means cluster analysis was conducted to maximize the difference between clusters and to minimize within-cluster variance. This method requires the number of clusters to be specified a priori and assumes that clusters are distinguishable from each other. Thus, the formation of distinct, homogeneous clusters resulted from this analysis. A discriminant function analysis was used to evaluate and confirm the formation of distinct clusters. Subsequently, a multivariate analysis of variance (MANOVA) was conducted to validate the separation of clusters.

Results

Preliminary analyses consisted of computing means and standard deviations for the MMPI-2-RF scale scores of the sex offender sample, shown below.

Table 5

MMPI-2-RF scale scores: Means and standard deviations (N = 281)

Scale	M	SD
Validity Scales		
Variable Response Inconsistency-revised (VRIN-r)	50.4	10.1
True Response Inconsistency- revised (TRIN-r)	**55.8**	6.1
Infrequent Responses- revised (F-r)	**56.7**	17.8
Infrequent Psychopathology Responses- revised (Fp-r)	51.8	14.1
Infrequent Somatic Responses (Fs)	53.0	13.8
Symptoms Validity- revised (FBS-r)	54.0	11.3
Response Bias Scale (RBS)	54.8	13.5
Uncommon Virtues- revised (L-r)	**58.2**	14.0
Adjustment Validity- revised (K-r)	50.4	11.1
Higher-Order (H-O) Scales		
Emotional/Internalizing Dysfunction (EID)	50.8	12.6
Thought Dysfunction (THD)	54.1	12.9
Behavioral/Externalizing Dysfunction (BXD)	52.9	9.8
Restructured Clinical (RC) Scales		
Demoralization (RCd)	52.3	12.2
Somatic Complaints (RC1)	53.3	11.0
Low Positive Emotions (RC2)	50.2	11.8
Cynicism (RC3)	51.7	12.4
Antisocial Behavior (RC4)	**55.0**	10.2
Ideas of Persecution (RC6)	**58.2**	13.5
Dysfunctional Negative Emotions (RC7)	48.4	11.7
Aberrant Experiences (RC8)	53.0	13.2
Hypomanic Activation (RC9)	47.4	10.2
Specific Problems (SP) Scales		
Somatic/Cognitive Scales		
Malaise (MLS)	51.9	10.5
Gastrointestinal Complaints (GIC)	51.5	10.6
Head Pain Complaints (HPC)	51.5	10.3
Neurological Complaints (NUC)	54.1	12.2
Cognitive Complaints (COG)	52.9	13.2

(continues)

Table 5 (cont.)

Scale	M	SD
Internalizing Scales		
Suicidal/Death Ideation (SUI)	50.5	13.2
Helplessness/Hopelessness (HLP)	50.6	12.4
Self-Doubt (SFD)	51.5	11.9
Inefficacy (NFC)	51.1	11.2
Stress/Worry (STW)	53.0	10.6
Anxiety (AXY)	52.8	14.2
Anger Proneness (ANP)	47.8	10.3
Behavior-Restricting Fears (BRF)	49.3	10.3
Multiple Specific Fears (MSF)	46.1	7.7
Externalizing Scales		
Juvenile Conduct Problems (JCP)	**55.0**	12.0
Substance Abuse (SUB)	50.3	10.7
Aggression (AGG)	47.1	10.2
Activation (ACT)	48.2	11.2
Interpersonal Scales		
Family Problems (FML)	47.2	10.2
Interpersonal Passivity (IPP)	47.5	8.9
Social Avoidance (SAV)	52.8	11.4
Shyness (SHY)	47.7	9.9
Disaffiliativeness (DSF)	50.4	11.5
Interest Scales		
Aesthetic-Literary Interests (AES)	42.1	8.2
Mechanical-Physical Interests (MEC)	**57.4**	9.9
Personality Psychopathology Five (PSY-5) Scales		
Aggressiveness- revised (AGGR-r)	51.4	8.9
Psychoticism- revised (PSYC-r)	52.9	12.9
Disconstraint- revised (DISC-r)	54.4	9.8
Negative Emotionality/Neuroticism-revised (NEGE-r)	51.2	10.7
Introversion/Low Positive Emotionality- revised (INTR-r)	52.5	11.6

Note. Means in bold indicate they are at least one-half of a standard deviation above the normative mean.

Among the 7 scales whose mean scores were in the range of 55-59T, that is, at a half standard deviation above the normative mean but under one standard deviation, four of them – scales L-r, RC6, RC4, and JCP are worthy of particular

comment. Scores above the mean on scale L-r measure overly positive self-presentation, and those on scale RC6 measure vigilance and self-referential beliefs that others pose a threat. Additionally, scores above the mean on scale RC4 measure rule-breaking and irresponsible behaviors, whereas those on scale JCP measure childhood behavior problems at school and home. The remaining three scales were validity scales TRIN-r and F-r, as well as Interest scale MEC.

Cluster Analyses

The initial analysis in this study was an agglomerative hierarchical cluster analysis based on 49 of the 51 MMPI-2-RF scales; the Interest scales were excluded. The first step of the analysis used Ward's (1963) method with standardized z-scores, which divided participants into homogeneous clusters based on maximized between-cluster variance and minimized within-cluster variance. From the multiple clusters yielded by this analysis, a review of the squared Euclidean distance identified a three-cluster solution as optimal. Figure 1 below shows that as the number of clusters increased, the squared Euclidean distance decreased. This indicates that as the number of clusters increased, the clusters became less distinct from one another. Specifically, Figure 1 demonstrates that beyond three clusters, the clusters became less distinct from each other. The squared Euclidean distance began to level off after Cluster 3, indicating that the between-cluster variance was smaller between Cluster 3 and subsequent clusters. Therefore, a three-cluster solution was chosen as the optimal grouping for this sample.

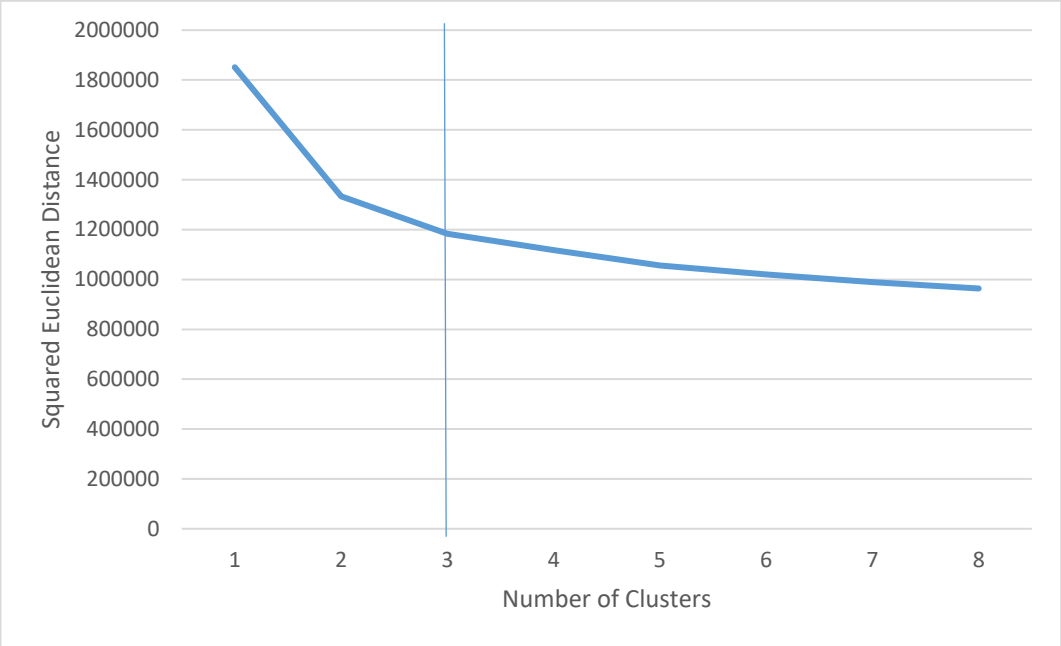

Figure 1. Squared Euclidean distance across clusters

In the next step, a nonhierarchical K-Means analysis was done to assign cases to one of the three clusters. This resulted in the following assignments: n = 46 for Cluster 1, n = 93 for Cluster 2, and n = 142 for Cluster 3. A discriminant function analysis was subsequently conducted to determine if the three clusters were significantly distinct from one another. The results of this analysis identified two significant functions that correctly classified 96.4% of the cases into cluster groups. Functions one through two yielded a Wilks' Lambda of 0.08 (df = 98), p < .001, and function two yielded a Wilks' Lambda of 0.63 (df = 48), p < .001, which revealed that the three clusters were significantly distinct from one another. A Multivariate Analysis of Variance (MANOVA) conducted to examine significant differences between clusters largely fulfilled the statistical assumptions required for

this analysis, including absence of excessive multicollinearity. Results showed the overall MANOVA effect was significant, Wilks' Lambda = .08, F (df = 98) = 11.98, $p < .001$. Of the 49 scales examined, significant differences in mean T scores across all three clusters were found for 33 scales through Bonferroni post hoc analysis. A review of cluster patterns indicated a consistent trend across the 33 scales in terms of significantly higher scores in Cluster 1 than Cluster 2 and Cluster 3, and significantly higher scores in Cluster 2 than Cluster 3, with all differences significant at the $p < .05$ level; the exception to this pattern was scale K, which showed the opposite pattern. The cluster analytic results are presented in Table 6, reflecting defining scale scores for each cluster and significant differences between cluster scores.

Table 6

Means and standard deviations of three-cluster solution

Scale	**Cluster 1** *(n = 46)* **M (SD)**	**Cluster 2** *(n = 93)* **M (SD)**	**Cluster 3** *(n = 142)* **M (SD)**
Validity Scales			
VRIN-r	--	--	--
TRIN-r	--	--	--
F-r	**88.5** (18.8)	56.4 (8.3)	46.5 (5.8)
Fp-r	**71.4** (20.3)	51.7 (9.7)	45.6 (6.1)
Fs	**71.6** (17.9)	56.1 (10.1)	45.0 (5.0)
FBS-r	**67.3** (10.7)	54.4 (9.7)	49.6 (8.7)
RBS	**74.7** (13.8)	54.5 (10.2)	48.6 (8.0)
L-r	--	--	--
K-r	34.8 (5.9)	45.4 (5.9)	58.8 (6.5)
Higher-Order (H-O) Scales			
EID	**71.2** (9.3)	53.5 (8.1)	42.5 (5.9)
THD	**71.7** (14.9)	55.9 (9.4)	47.3 (7.1)
BXD	--	--	--

(continues)

Table 6 (cont.)

Scale	Cluster 1 *(N = 46)* M (SD)	Cluster 2 *(N = 93)* M (SD)	Cluster 3 *(N = 142)* M (SD)
Restructured Clinical (RC) Scales	**72.9** (7.1)	55.2 (6.9)	43.8 (5.4)
RCd	**66.6** (9.5)	56.0 (8.0)	47.2 (8.4)
RC1	--	--	--
RC2	64.7 (10.8)	55.8 (11.1)	44.8 (8.5)
RC3			
RC4	63.5 (11.1)	56.7 (9.1)	51.1 (8.5)
RC6	**75.1** (13.7)	60.4 (10.0)	51.3 (9.6)
RC7	**66.4** (10.0)	52.4 (6.9)	40.0 (4.8)
RC8	**71.2** (15.2)	55.6 (9.8)	45.3 (6.1)
RC9	--	--	--
Specific Problems (SP) Scales			
Somatic/Cognitive Scales			
MLS	63.0 (11.7)	52.4 (8.6)	48.0 (8.5)
GIC	59.5 (15.1)	53.8 (11.2)	47.5 (5.1)
HPC	62.5 (12.2)	53.7 (8.7)	46.5 (6.7)
NUC	**68.1** (10.3)	56.2 (11.0)	48.1 (9.0)
COG	**73.9** (12.1)	55.2 (8.0)	44.6 (6.2)
Internalizing Scales			
SUI	63.6 (22.3)	50.5 (10.9)	46.2 (5.7)
HLP	**67.3** (10.5)	52.2 (11.7)	44.1 (6.8)
SFD	**70.0** (9.8)	53.3 (9.7)	44.3 (4.9)
NFC	**66.4** (9.5)	54.1 (8.6)	44.2 (6.6)
STW	**65.2** (9.5)	57.1 (9.1)	46.3 (5.8)
AXY	**72.3** (18.1)	54.5 (11.8)	45.4 (4.5)
ANP	58.5 (11.6)	50.6 (9.5)	42.6 (6.4)
BRF	59.4 (15.1)	50.2 (9.2)	45.4 (5.9)
MSF	--	--	--
Externalizing Scales			
JCP	--	--	--
SUB	--	--	--
AGG	54.3 (11.5)	49.7 (10.8)	43.1 (7.2)
ACT	--	--	--
Interpersonal Scales			
FML	60.0 (12.1)	48.3 (8.1)	42.3 (6.2)
IPP	--	--	--
SAV	--	--	--

(continues)

Table 6 (cont.)

Scale	Cluster 1 *(N = 46)* M (SD)	Cluster 2 *(N = 93)* M (SD)	Cluster 3 *(N = 142)* M (SD)
SHY	58.7 (9.8)	49.3 (9.1)	43.2 (7.0)
DSF	--	--	--
Personality Psychopathology Five (PSY-5) Scales			
AGGR-r	--	--	--
PSYC-r	**70.5** (14.9)	55.0 (9.3)	45.9 (6.9)
DISC-r	--	--	--
NEGE-r	**65.9** (9.9)	55.4 (7.2)	43.8 (5.1)
INTR-r	--	--	--

Note. Means and standard deviations are only listed for scales with all clusters significantly different from each other at the $p < .05$ level. Means in boldface indicate T scores of ≥ 65T (1.5 SD above the normative mean). Means that are underlined indicate T scores of ≤ 45T (0.5 SD below the normative mean).

Cluster 1 was the smallest cluster ($n = 46$; 16.4% of the sample) and had the highest mean T scores overall. Mean scores for this cluster suggested the presence of emotional disturbance and cognitive difficulties. Scales indicative of emotional disturbance, as evidenced by mean T scores ≥ 65, were EID, RCd, RC1, RC7, HLP, SFD, NFC, STW, AXY, and NEGE-r. Among the MMPI-2-RF scales that assess cognitive difficulties, mean T scores were high for six scales in this cluster: THD, RC6, RC8, NUC, COG, and PSYC-r. Validity scales F-r, Fp-r, Fs, FBS-r, and RBS were also at least one-and-a-half standard deviations above the normative mean of 50T, whereas scale K was greater than one-and-a-half standard deviations below the normative mean. This cluster represents a combination of the clusters anticipated in hypotheses 3 and 4.

Cluster 2 was the second largest cluster (*n* = 93; 33.1% of the sample). Mean scores for this cluster were largely within normal limits, consistent with hypothesis 1 for this study. However, there were some scores at least one-half of a standard deviation above the normative mean, reflecting some acknowledgment of psychological difficulties. These scales included THD, RCd, RC1, RC3, RC4, RC6, RC8, NUC, COG, STW, PSYC-r, NEGE-r, F-r, and Fs.

Cluster 3 was the largest cluster (*n* = 142; 50.5% of the sample), and thus was the predominant pattern for the overall sample. Members of this cluster obtained the lowest mean scores overall; several scores were at least half a standard deviation below the normative mean. These scales included EID, RCd, RC3, RC7, COG, HLP, SFD, NFC, ANP, AGG, FML, SHY, NEGE-r, and Fs. Of note, no scales except for scale K were at or higher than one-half of a standard deviation above the normative mean. This cluster corresponds with hypothesis 5, which anticipated a unique cluster not previously identified. Participant data was examined for each cluster and can be found in Table 7 below.

Table 7

Participant data for each cluster

Variable	**Cluster 1** *(n = 46)*	**Cluster 2** *(n = 93)*	**Cluster 3** *(n = 142)*
Marital Status			
Single	56.5%	53.8%	29.6%
Married	21.7%	24.7%	30.3%
Separated	4.3%	3.2%	12.0%
Divorced	13.0%	14.0%	21.1%
School Degree			
None	17.4%	19.4%	10.6%

(continues)

Table 7 (cont.)

Variable	Cluster 1 (n = 46) %	Cluster 2 (n = 93) %	Cluster 3 (n = 142) %
High School	23.9%	26.9%	23.2%
GED	15.2%	7.5%	10.6%
Some College	17.4%	26.9%	23.2%
2-Year Degree	8.7%	3.2%	7.7%
4-Year Degree	13.0%	10.8%	14.8%
Graduate Degree	4.3%	2.2%	6.3%
Referral Source			
Attorney	84.8%	76.3%	50.7%
Court-Ordered	6.5%	8.6%	19.0%
Case Manager	2.2%	2.2%	8.5%
Other Source	6.5%	11.8%	19.7%
Nature of Charge			
Contact	34.8%	35.5%	31.7%
Non-Contact	19.6%	20.4%	19.7%
Intended Contact[1]	34.8%	29.0%	14.8%
Allegation Pending Charge	8.7%	11.8%	32.4%
Contact and Non-Contact	0.0%	2.2%	1.4%
Non-Contact and Intended Contact	2.2%	1.1%	0.0%
Victim Age			
Less than 5 years	0.0%	2.2%	9.9%
5- to 9-years	4.3%	15.1%	12.7%
10- to 12-years	8.7%	5.4%	12.0%
13- to 17-years	50.0%	47.3%	32.4%
18 years or older	4.3%	4.3%	2.1%
Multiple Victims Across Ages	0.0%	2.2%	6.3%
Victim Gender			
Male	8.7%	4.3%	8.5%
Female	65.2%	68.8%	69.0%
Male and Female	0.0%	2.2%	1.4%
Relationship to the Victim			
Family	15.2%	22.6%	30.3%
Stepfamily	10.9%	4.3%	14.8%
Family and Stepfamily	0.0%	1.1%	1.4%
Acquaintance	13.0%	15.1%	13.4%
Stranger	32.6%	30.1%	16.9%
Current Living Situation			
Alone	10.9%	15.1%	21.1%
With Significant Other	6.5%	19.4%	22.5%
With Family	41.3%	35.5%	14.1%
With Roommate	2.2%	5.4%	3.5%

(continues)

Table 7 (cont.)

Variable	Cluster 1 (*n* = 46) %	Cluster 2 (*n* = 93) %	Cluster 3 (*n* = 142) %
Incarcerated	23.9%	12.9%	12.0%
Current Employment Status			
Employed	41.3%	45.2%	57.7%
Unemployed[2]	50.0%	45.2%	32.4%
Disabled	4.3%	1.1%	2.8%
Retired	4.3%	0.0%	2.1%
Family Mental Health History			
Yes	41.3%	19.4%	17.6%
No	39.1%	55.9%	59.2%
Family Substance Abuse History			
Yes	37.0%	34.4%	23.2%
No	41.3%	39.8%	52.8%
History of Emotional Abuse			
Yes	15.2%	17.2%	4.9%
No	71.7%	67.7%	74.6%
History of Physical Abuse			
Yes	21.7%	14.0%	4.9%
No	65.2%	71.0%	74.6%
History of Sexual Abuse			
Yes	19.6%	9.7%	9.2%
No	71.7%	79.6%	73.2%
History of Neglect			
Yes	4.3%	2.2%	0.0%
No	82.6%	82.8%	78.9%
Nature of Previous Legal History			
None	54.3%	51.6%	54.2%
Nonviolent	30.4%	22.6%	17.6%
Violent	2.2%	7.5%	7.7%
Sex Offense	0.0%	2.2%	2.8%
Combination[3]	8.7%	10.8%	14.1%
History of Substance Abuse			
Yes	52.2%	38.7%	35.9%
No	47.8%	57.0%	59.2%
Current Substance Abuse			
Yes	23.9%	10.8%	8.5%
No	76.1%	87.1%	88.7%
History of Mental Health Treatment			
Yes	84.8%	67.7%	61.3%
Sex Offender Treatment	13.0%	8.6%	12.0%

(continues)

Table 7 (cont.)

Variable	Cluster 1 (*n* = 46) %	Cluster 2 (*n* = 93) %	Cluster 3 (*n* = 142) %
Anger Management	0.0%	8.6%	5.6%
Substance Abuse Treatment	15.2%	9.7%	10.6%
No	15.2%	29.0%	36.6%
Primary Axis I Diagnosis			
Paraphilic Disorder	28.3%	20.4%	25.4%
Adjustment Disorder	17.4%	26.9%	16.9%
Mood Disorder	34.8%	12.9%	8.5%
Other Disorder	17.4%	17.2%	16.2%
No Diagnosis	2.2%	19.4%	30.3%
Primary Axis II Diagnosis			
Personality Disorder	28.3%	16.1%	16.2%
Personality Features	19.6%	21.5%	20.4%
Other Disorder	0.0%	1.1%	0.0%
No Diagnosis	52.2%	58.1%	60.6%

Note.
[1]Intended Contact refers to those who were charged with sex offenses such as travelling to meet a minor with the intent to commit a contact sex offense or attempting to commit a contact sex offense.
[2]Of those who were unemployed, 56.5% (*n* = 13) in Cluster 1, 47.6% (*n* = 20) in Cluster 2, and 63.0% (*n* = 29) in Cluster 3 lost their job or were unemployed due to their arrest and/or incarceration.
[3]Those classified as Combination had previous legal histories of nonviolent, violent, and/or sex offenses.

Examination of participant data revealed several noteworthy differences between clusters. Cluster 1 had a relatively larger percentage of members with a familial history of mental health and/or substance abuse diagnoses compared to the other clusters. This cluster had a substantial percentage of members with a personal history of sexual abuse, as well as past and current substance abuse. Additionally, Cluster 1 had relatively larger proportion of members with personal history of mental health treatment. On the other hand, Cluster 3 had a relatively

smaller number of members with a familial mental health history and/or substance abuse. This cluster also had a relatively smaller proportion of individuals with a personal history of emotional, physical, or sexual abuse, as well as neglect. Cluster 3 also had a relatively smaller percentage of members with current substance abuse. Also of note, Cluster 3 had a relatively larger proportion of family and stepfamily members as victims compared to the other clusters. In terms of similarities between clusters, a comparable percentage of participants across all three clusters had engaged in a contact sexual offense, had female victims, and had no prior legal history.

Discussion

The impact of sex offenses on society, and on the safety of women and children in particular, is of great concern. Sexual offenses have long-term adverse effects on victims, which is well documented in a separate psychological research literature. Today there is greater societal awareness of their impacts than in earlier decades, which has spurred increased concerns about child protection. Research on personality profiles of sex offenders has shown that there is no single prototypic sex offender, which makes it more difficult to institute safeguards in society. Personality assessment research has, however, shed important light on aspects of personality that inform our understanding of common dysfunctional personality characteristics found in sex offenders. These characteristics range from antisocial traits, such as impulsivity, anger, callousness, and lack of empathy, to narcissistic features, to emotional instability and poor self-image (Phenix & Hoberman, 2016; Stinson et al., 2008).

Personality assessment is also routinely used in psychological evaluations of sex offenders, once they have been apprehended, to inform dispositional decisions and evaluate the risk for sex offense recidivism. The MMPI family of instruments are historically the most commonly used objective personality measures with the sex offender population. These instruments are well suited to the task of evaluating sex offenders because they are multidimensional, comprehensive measures that delve into their psychological makeup, such that the focus is not limited to only the nature of the offense and basic demographic profiles

of offenders. Forensic research with the MMPI-2-RF is still in nascent stages, however, it has shown utility in a variety of forensic assessment contexts, including with sex offenders.

Cluster analysis is a useful approach to identify subgroups of sex offenders based on their personality characteristics, and has been done extensively using both the MMPI and MMPI-2. However, there have been no published studies using this approach with the MMPI-2-RF. Given that this latest edition of the MMPI has a different structure and encompasses somewhat different content that its predecessors, it would be informative to know what types of cluster analytic patterns emerge and how they compare to previous research findings.

The hypothesis of the current study was based on prior cluster analytic research findings with the MMPI and MMPI-2. It was predicted that four distinct clusters would emerge: a within-normal-limits cluster, an externalizing behavioral cluster, an internalizing cluster, and a cluster representative of severe psychological disturbance. It was also predicted that a new cluster could emerge that had not been identified in previous studies with the MMPI and MMPI-2; it was hypothesized that this cluster might be a hybrid of different personality characteristics. The current study's results found that a three-cluster solution was optimal. Specifically, three distinct clusters that were reasonably robust were identified. Based on the composition of scales, these clusters can be labeled the "psychological disturbance presentation," "within normal limits presentation," and the "well-adjusted presentation" clusters.

Cluster 1: "Psychological Disturbance Presentation:

The "psychological disturbance presentation" cluster included multiple high scores that extended across different domains of personality and functioning. Thus, this cluster was characterized by having the highest levels of psychological disorder inclusive of internalizing tendencies; 21 of the mean scale scores in this cluster were one-and-a-half standard deviations above the normative mean. This disturbed pattern has consistently been found in studies with the MMPI family of instruments (e.g., Falkenhain et al., 1999; Hall et al., 1991; Heersink & Strassberg, 1995; Shealy et al., 1991). Additionally, this cluster was representative of the predicted internalizing tendency cluster. The scales expected to reflect internalizing behaviors were EID, RCd, HLP, SFD, NFC, RC2, RC7, STW, AXY, NEGE-r, and INTR-r. Within the "psychological disturbance presentation" cluster, prominent scales included EID, RCd, RC7, HLP, SFD, NFC, STW, AXY, and NEGE-r, indicating that nine of the eleven predicted internalizing scales produced mean T scores one-and-a-half standard deviations above the mean within Cluster 1, and were significantly higher than corresponding mean T scores in the other clusters. The prominent internalizing features of this cluster are consistent with cluster patterns of sex offenders found with both the MMPI and MMPI-2 (e.g., Anderson et al., 1979; Duthie & McIvor, 1990; Kalichman et al., 1992; Ridenour et al., 1997).

Participants in Cluster 1 presented as open to self-disclosure and expressed the greatest emotional difficulties, cognitive confusion, and internalizing

difficulties. Cluster 1 was largely punctuated by a high level of emotional disturbance and cognitive disarray that are heightened by a sense of dissatisfaction and hopelessness regarding situational factors. Also prevalent in this cluster were psychosomatic complaints, feelings of insecurity, persecutory ideation, and inability to cope with stress. Interestingly, this cluster did not represent notable behavioral disturbance. The majority of participants in this cluster were single and had been referred for evaluation by an attorney. The largest percentage of charges concerned either contact or intended contact offenses with teenage girls who were unknown to them as the intended targets. A large portion of cluster members lived with either family members or were incarcerated, and approximately half of the participants were unemployed at the time of evaluation. Approximately half of the participants had no prior legal history. This cluster had a substantial percentage of members with a familial history of mental health diagnoses and substance abuse, as well as personal history of substance abuse. The majority of participants reported a personal history of mental health treatment, with the primary diagnoses including mood disorders, paraphilic disorders, and personality disorders.

Cluster 2: "Within Normal Limits Presentation:"

The "within normal limits presentation" cluster presented with mean scores that were largely average, indicating members of this cluster present minimal to no psychopathology. However, there were some scales at least one-half of a standard deviation above the normative mean, reflecting some acknowledgment of psychological difficulties. This finding is similar to cluster analysis results with the

MMPI (e.g., Hall et al., 1991; Heersink & Strassberg, 1995; Kalichman et al., 1992; Shealy et al., 1991) and MMPI-2 (e.g., Falkenhain et al., 1999; Ridenour et al., 1997). It is noteworthy that participants in this cluster presented as significantly less defensive than those in Cluster 3. Similar to Cluster 1, members of Cluster 2 were largely single and had been referred for the evaluation by an attorney. The majority of charges within this cluster concerned contact or intended contact offenses with teenage girls who were either unknown to them or were family members as the targets. Over one-third of the members in this cluster lived with family, and an equal number were employed or unemployed. Approximately half of the cluster members did not have a previous legal history. Roughly one-third of participants had a family history of substance abuse, and this cluster had the largest proportion of members with a personal history of emotional abuse. Approximately 39% of the cluster members had a past history of substance abuse, but only 11% had a current history of substance abuse. Two-thirds of the participants had a history of mental health treatment, with the primary diagnoses including adjustment disorders, paraphilic disorders, and personality features.

Cluster 3: "Well-Adjusted Presentation"

The "well-adjusted presentation" cluster was the predominant pattern for the overall sample. Participants in this cluster obtained the lowest mean scores across MMPI-2-RF scales and presented with the highest level of guardedness, as seen in scale K, reflecting denial of emotional, behavioral, or psychological difficulties. This cluster pattern has not been consistently identified with the MMPI

or MMPI-2, suggesting a new cluster pattern has emerged with the MMPI-2-RF. It should be noted, however, that Ridenour et al. (1997) found one cluster with the MMPI-2 that had lower mean T scores on scale F and the clinical scales compared to the other clusters within their study; this is similar to the suppressed scores in Cluster 3 of the current study.

Cluster 3 had both married and single members, and had a relatively larger percentage of participants than the other two clusters who had been court-ordered for the evaluation. Over half were employed and had no previous legal history. Approximately two-thirds of the participants were charged with either a contact offense or had pending charges. This cluster had more variability regarding victim age than the other clusters, however, the largest portion of victims were still teenage girls. Approximately half of the victims for this cluster were either family or stepfamily members. Cluster members tended to either live with significant others or live alone, and this cluster had the lowest percentage of individuals who were incarcerated. Members of this cluster did not report a substantial proportion of familial mental health or substance abuse histories, nor personal histories of abuse or neglect. Just under two-thirds of cluster members had a personal history of mental health treatment, but the primary diagnoses were predominantly no diagnosis, paraphilic disorders, and personality features.

The aforementioned descriptions of the three clusters found in this study indicate that Cluster 1 best reflected a combination of the hypothesized internalizing and psychologically disturbed clusters and that Cluster 2 fit the

expectation of a within normal limits cluster. Cluster 3, on the other hand, represented a new cluster that had the appearance of being psychologically well-adjusted, but this seemed to be due to participants' level of defensiveness. The hypothesized externalizing behavior cluster pattern was not found in the current study. Regarding externalizing behaviors, it was hypothesized that BXD, RC4, JCP, RC9, AGG, ACT, AGGR-r, and DISC-r would be reflected in a cluster. Although RC4 and AGG were significantly different across clusters in the direction of being highest in Cluster 1 and lowest in Cluster 3, they did not specifically contribute to any cluster in a meaningful way as their mean T scores were under 65T. The other externalizing scales were not significantly different across clusters and also did not produce high mean T scores. Although this finding may suggest that sex offenders do not tend to engage in significantly more externalizing behaviors than the general population, this is an issue that needs to be further investigated in future research.

There are several implications resulting from the current study. The first implication involves the defining characteristics of each cluster. This study showed that, within a sample of sex offenders, there are subgroups of these individuals based on personality characteristics. The largest subgroup, Cluster 3, was likely representative of the most frequently encountered sex offenders. Since this cluster presented defensively as well-adjusted with lower mean T scores on the MMPI-2-RF, this type of sex offender is most likely to be perceived as less of a threat as a result of being better able to conceal any experienced maladjustment. Therefore, for

this subgroup, other assessment tools and strategies, such as thorough review of collateral records and other measures of personality, are particularly important to use in conjunction with the MMPI-2-RF for this cluster. Because this is the most dominant cluster, it could be suggested that the MMPI-2-RF is composed in such a way that it is more difficult to identify certain types of personality characteristics, such as externalizing behaviors, within the sex offender population. On the other hand, these results could also suggest that sex offenders are typically not as aggressive as non-sex offending criminal populations. These questions should be addressed in future research to provide more in-depth knowledge of the MMPI-2-RF's utility with the sex offender population.

This study contributed to the existing research on personality assessment with sex offenders by examining cluster analytic patterns with the MMPI-2-RF, an area that has been extensively studied with the MMPI and MMPI-2 but not with the MMPI-2-RF. Having an idea of the various subgroups within the sex offender population could help inform psychological evaluations of this population. Additionally, the current study provided reference data in terms of MMPI-2-RF mean scale scores for a sample of sex offenders. This study also provided information about the personal histories associated with each subgroup of sex offenders. The identified differences across the clusters, both in MMPI-2-RF test scores and in personal history, speak to the fact that sexual offenses arise from a very complex set of factors; there is not a simple cause and effect relationship between dysfunctional personality characteristics and sex offenses. While it is

useful to isolate personality disturbances, they interact in complex ways with other biopsychosocial factors and life experiences. It is this complexity that makes it difficult to predict who would be a sex offender, and many contributing factors are likely yet undiscovered. Nonetheless, the current study sheds light on several salient characteristics different that may be important to note. Another asset of the current study is that it included a sizeable sample to obtain sufficient statistical power for the analyses and to yield meaningful and interpretable findings. It included participants who had committed a broad array of offenses (e.g. contact, non-contact, and intended contact), against children ranging from less than 5-years-old to 17-years-old, with the majority of victims being teenage girls; some participants with adult victims were also present in this study.

This research does contain some limitations. While this study consisted of a relatively substantial sample of sex offenders, all participant data was obtained from a single location in the southeastern United States, whereas a nation-wide sample would have been desirable. A second limitation of this study stems from the use of archival data. When relying upon previously recorded information, missing data cannot be remedied as it can be in studies that involve direct contact with the participants. Additionally, this sample included only a small subset of participants with adult victims and with male victims, indicating that future research should be done with the MMPI-2-RF with samples of sex offenders who offended against adults and against males. Another direction for future research would be to extend the findings of this study with information regarding outcome

of any current or future sex offender treatment. For example, it would be beneficial to know treatment prognosis and completion rate for each cluster and implement predictive validity studies regarding treatment outcome. On the same note, it would be valuable to know recidivism rates for each cluster. Having this knowledge would help inform future use of risk assessment measures, as well as have an impact on judicial decisions. Given that previous research with the MMPI family of instruments has yielded a large number and variety of cluster solutions, some differing from the ones found in the current study, a future replication of this study with a different sample of sex offenders could help determine if the MMPI-2-RF-based clusters that emerged in the current study are reliable and stable.

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